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THE ROENTGENOLOGY OF CHRONIC JOINT DISEASE.*

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Roentgenology has come to be recognized as an indispensable aid in the diagnosis and prognosis of chronic joint lesions. The pathology of the whole group of chronic arthritis is still surrounded by such obscurity, the question of causation is still so unsettled, and especially in the case of deep-seated joints (the shoulder and the hip) the difficulties of determining the acute state of the parts affected are so many, that the aid of the roentgenographic examinations should be sought in every doubtful case. The roentgenographic examination does not overcome all the above mentioned difficulties, but many mistakes would be avoided and treatment could be carried out with greater confidence and success if the roentgen examination were made a part of the routine in the study of chronic joint diseases.

We should not lose sight of the fact that the x-ray examination affords only such evidence as can be based upon a qualitative estimation of variations in bone density, bone contour and variations from the normal anatomical approximation of parts forming the joints.

Out of the above limitation have grown the terms atrophic and hypertrophic arthritis, which are widely used by roentgenologists. With the exception of arthritis urica, tabetic arthropathy and possibly tuberculous arthritis, in each of which the x-ray evidence is characteristic of the condition, it is rarely possible, from the roentgen findings alone, to arrive at a definite conclusion regarding the etiology of a given case of joint disease; but the x-ray findings frequently make possible a definite diagnosis of an otherwise obscure condition.

The various facts which may be learned from the roentgen examination may be listed as follows:

1. *Variations in the density of bone,* evidenced by rarefaction or condensation of bone, due, respectively, to absorption of mineral matter or to an extra-depositon of mineral matter or actual growth of new bone. It may be understood that, in general, acute bone disease is best recognized by increased transparency of the bone to the x-ray, and chronic disease by increased opacity of the bones to the x-ray. Strictly speaking, the roentgenologist does not see the joint proper, but draws his conclusions from the changes which have taken place in the ends of the bones which make up the joint. Hence the necessity of recognizing the changes attending acute or chronic bone disease.

It should be remembered that there are normal variations in the opacity of the bones to the x-ray. From birth until early adult life there is a general increase in the density of the bones. In old age and in thinner people, the shadows of the bones generally appear to be still denser; this is not due to an actual increase in the density of the bone, however, but to a decrease in the density of the surrounding tissues.

2. *Alteration of contour.* This alteration may be due to the production of osteophytes and exostoses, to subperiosteal swellings, to distortion of the bone accompanying softening and pressure, or to actual erosion of subchondral bone in the joint surface. Particularly in the study of the vertebral bodies, stereoscopic or lateral

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studies, especially the last-named, are required for accurate observation of bone distortions.

3. *Periarticular swelling.* In order to show periarticular enlargements it is necessary to observe certain principles of technic in the making of the roentgenogram. In other words, the quality of the ray used should be so adjusted that not only will bone detail be clearly shown, but also the surrounding soft tissues. For this purpose, a high tube is required. Such a tube will produce only a gray shadow, with want of contrast between bone and surrounding soft tissue, which, to the inexperienced observer, will appear as a poor picture; yet on close study such a shadow record will be found to contain detail of the greatest value in diagnosis. When tubes are too soft ("low") the image of the bones is very black, and although the contrast is marked and the picture is hence photographically "very clear," detail in the bone is conspicuous by its absence; one has secured a silhouette, not a roentgenogram. An individual not thoroughly conversant with the fact that the roentgenographic interpretation of joint disease is based upon the registration of variations in density is likely to prefer the roentgenogram as a black and white picture, whereas, as a matter of fact, contrast is less to be sought for than an accurate reproduction of the relative densities of the part under study.

A plate should be used of sufficient size to show not only the structure of the bones of the joint, but also the contour of the surrounding soft tissue; otherwise it will be impossible to make an estimate as to the amount of soft tissue swelling or fluid collections. On the other hand, the size of the roentgenogram is increased at the expense of fine definition. In general it is not wise to attempt to get both hips on one plate. It is better to diaphragm down upon smaller areas, making several plates, rather than suffer the unavoidable loss of tissue detail.

4. *Anatomical deviations,* as *luxations* or *subluxations.* An accurate knowledge of the anatomy of the joints is, of course, essential. Another essential is the adoption of a constant technic as to the relative position of the tube, joint and sensitized plate. Only by following a constant technic it is possible to make an accurate comparison of roentgenograms made at different times of various individuals. It is the writer's custom to make stereoscopic roentgenograms of all shoulder and hip conditions. In the stereo-roentgenogram the true relation of the parts is accurately portrayed, with correction of shadow distortions. In fact, it is only the stereo-roentgenogram which can properly be called an x-ray "picture." The ordinary roentgenogram is only a record of shadows of varying density and disproportion varying with the relative distance of different parts of the joint from the plate.

5. *Narrowing of joint slits,* indicating atrophy or destruction of cartilage. Here again the adoption of a constant roentgenographic technic is absolutely essential and the making of stereoroentgenograms is often very helpful. The narrowing of the slit may be asymmetrical, the destruction of the cartilage being more marked on one side than on the other.

6. *Bony ankylosis* may be discovered and an estimate made of the presence or absence of fibrous ankylosis. In the latter the interarticular space is represented by a clear line, while in bony ankylosis the interarticular space has disappeared and is replaced by a dark zone of about the same density as the neighboring bones with almost complete disappearance of the line of separation between the joint surfaces.

7. *Calcareous or uratic deposits.* Calcareous bodies may be evidence of lime deposits in joints or in ligaments, or the deposit may be in the bursae connected with the joint. Bursal ossification especially occurs in connection with periarthritis humeroscapularis. Sesamoid bones in the neighborhood of the joints, particularly the sesamoid which occurs in the long head of the gastrocnemius should not give rise to any confusion in these cases. The injection of oxygen into the joint may assist materially in the proper differentiation of calcareous masses in the neighborhood of the joints.

8. Discharging *sinuses,* particularly in connection with tuberculous joints, may be helpfully studied after the injection of Beck's paste.

As roentgenologists our reports must be based strictly upon the above findings, and we must differentiate carefully between a statement of the objective morphological findings and a statement as to the probable etiology or the probable clinical type (Barker). It is true we may often predict from the x-ray findings to which clinical

group a given case belongs. For instance, if the case falls under the x-ray classification of atrophic arthritis, it is, according to Barker, probably either a primary chronic progressive polyarthritis or an arthritis attending some infectious process. On the other hand, if a case falls under the x-ray classification of hypertrophic arthritis, it will suggest either a primary arthritis deformans which may be the benign process of advanced life or the result of infection or trauma, or a condition of neuropathic origin. In other words, the roentgen report should not be considered, either by its maker or its reader, as a diagnosis, but only a contribution toward the diagnosis, this contribution to be carefully collated with the various other findings, clinical and laboratory.

In order to make this paper a part of the symposium in which it is listed on the program, the writer has undertaken to discuss only those chronic joint infections which may be classed under the anatomical head of arthritis deformans, including cases of tuberculous, syphilitic, gonorrheal, gouty, traumatic, senile and metabolic origin. A special effort has been made to illustrate the preceding paper by Dr. Davis on the pathology of joint disease.

There will be described a series of changes in the joints which are found to a certain degree in senility and to a marked and varying degree in all of the conditions above mentioned. These joint changes all produce deforming lesions and with the exception of gout, lues and tuberculosis, can not, from the roetgenographic standpoint, be differentiated. The roentgenologist can only base his report upon the x-ray findings, as listed early in this paper. These findings should then be collated with other clinical evidences in the case.

Senile Arthritis. In the later years of life there are to be observed in roentgenograms of joints certain changes resembling the joint changes of arthritis deformans, which must be conceived as merely a symptom of old age. For instance, if in a patient of fifty years or more, the contour of the vertebral bodies runs out into thorns or slight sharp-angled protrusions, they are probably to be considered evidence only of senile changes. If, however, these protrusions are larger, or are found in younger people, these findings must then be considered as chronic arthritis or incipient arthritis deformans. In the knee joint, for instance, the space in the joint shadow corresponds to the cartilage of the articulation. The normal width of this space is three to five millimeters. An accurate physiologic and pathologic limitation can not be set, but the diagnosis is aided by observing a narrowing of the articular space, particularly where the wearing out is irregular so that, for example, the articular cartilage of the knee joint is more worn out in the median half than in the lateral half, or vice versa. The recognition of this destruction of cartilage is simplified by the presence of osteophytes.

Arthritis Deformans. In primary arthritis deformans the following findings have been described:

1. Roundish, ball-like exostoses in and around the joints, which, in joints with wide synovial pockets, may develop into loose bodies.
2. Sharp demarcation of the bones of the joints with the formation of osteophytes.
3. Lateral deposits on the borders of the capsule and outside of the joint.

Spondylitis deformans is a particularly interesting variety of arthritis deformans. The changes here correspond to those described in the hypertrophic type of chronic arthritis. The bodies of the vertebrae are asymmetrical, the hypertrophic changes occurring in the corners of the bodies and less frequently in the transverse processes. There is such a constant relation between the occupation of the patient and the seat of the osteophyte formation in spondylitis deformans that some observers have considered it possible to detect a man's occupation from the study of a roentgenogram of his arthritic spine (Lane). Bridge formation and adhesions, deformity of the vertebral bodies and finally complete ankylosis are characteristic findings in advanced spondylitis.

Arthritis Urica. This condition is characterized by the deposit of urates in the tissue of the joint, primarily in the ligaments, but later in the articular cartilages. The uric acid salts consist of the combined urates of sodium, potassium, ammonium, magnesium and calcium and in some instances considerable accumulation of these combined salts takes place in the neighborhood of the joints. The urates of calcium and magnesium are the more dense, and it is found, prac-

tically, that in almost every case of gout the uratic deposits cast a perceptible shadow in the roentgenogram.

Bruce has called attention to characteristic uratic deposits (Bruce's nodes) which occur as very small osteomata, on the lateral border of the proximal phalanges of the hands. Often small, and sharply marked, they are seen as additions to the outline of the bone. Since they are less opaque than the bone, the contour of the bone can be made out through them. As above noted, they are best seen in the phalanges where the lateral ligaments are attached to the bone.

There is still much controversy over the deforming arthritis which occurs in connection with certain infections or metabolic errors. The experimental studies of Pemberton (*American Journal of the Medical Sciences*, December, 1913, to March, 1914) substantiate the findings of many observers that in a large number of cases of rheumatoid arthritis the disease is due to an error of metabolism. He recognizes that some careful clinicians believe that all cases are due to an infective focus, known or unknown; but if this be true, it places many instances of the disease in the class of those having a hidden or unrecognized focus. Either there is a distinct type of rheumatoid arthritis in which the disease is due to an error of metabolism, or else there are cases in which the cause is a hidden infection which responds to measures aimed to correct faulty metabolism.

The x-ray studies in Pemberton's cases showed the atrophic process generally predominating, but it was practically always accompanied by hypertrophic changes to a greater or less degree. In most of the cases reported there was an elongated, tortuous and sometimes prolapsed colon, In the few which showed a practically normal position of the colon, two-thirds were constipated. Pemberton concludes that rheumatoid arthritis may occur in persons in whom no anatomical abnormality in the alimentary tract can be demonstrated by the x-ray. To this I would take exception, for in a large number of cases examined by me, although the position of the bowel was not to be seriously criticized, there was considerable abnormality in its function, the principal finding being a state of spasticity of the bowel, accompanied in many instances by excessive mucus in the stool and other clinical evidences of chronic colon infection.

There is no constant relation between the contour, especially as relates to apparent kinks, and the functional behavior of the large bowel.

We should mention also the value of the x-ray in noting the progress in some cases of rheumatoid arthritis of the hands. There is noted a diminution in the ulnar deviation and an improvement in the position of the small bones, corresponding to improvement in the general condition.

The writer is indebted to Dr. D. J. Davis for the privilege of studying, by means of the x-ray, certain animals in whom arthritis has been produced experimentally as the result of certain diets. Dr. Davis has already spoken, and the writer will show these slides to illustrate the remarks already made by the doctor.*

Guinea pigs were given special, exclusive diets, some a diet of milk, raw or boiled, some a diet of barley, some a diet of oats and some a normal diet, for purposes of control. The guinea pigs on a pure milk diet developed an arthritis at a definite period, nearly always the twenty-first day. The animals on an oats diet developed an arthritis at an earlier date, about the eleventh day. These points have already been mentioned in Dr. Davis' paper. There were three classes of joints examined in these guinea pig experiments:

1. Those in which there was an acute arthritis which had existed for three or four days;
2. Cases in which the joint lesion was four or five weeks old;
3. Cases in which six or eight months had elapsed since the joints were involved.

In the acute cases there was no perceptible roentgenographic change except the periarticular soft tissue swelling. I thought I was able to detect, in certain instances, the roughening of the epiphyses.

In the second class, where the joint lesion had existed for four or five weeks, there were more marked changes perceptible, particularly rarefaction; osteophyte formation and roughening in the region of the epiphyses were still more marked.

In the healed cases there was perceptible osteophyte formation with thickened periosteum and

*A series of slides illustrating the various points of this paper and the animal experiments of Dr. Davis were shown by the speaker at the close of his paper.

broadening of the shaft of the bones in the epiphyseal region. There were several pathological fractures in these old cases, some of which had not been previously observed in the laboratory.

These conclusions were all drawn after careful study of joints in control animals.

Joint Tuberculosis. In the very earliest stages of joint tuberculosis, when the disease is confined to the synovial membranes, there may be no recognizable deviation from the normal. Among the earliest changes recognizable on the roentgenogram may be included (a) absorption of lime salts with resulting increased transparency to the rays; (b) increase of fluid in the synovial sacks. The above makes it difficult to get anything more than a poor and ill-defined shadow of the bone. Roentgenograms of tuberculous joints are, as a rule, from the photographic standpoint, disappointing. The outlines are blurred and the spaces of the cancellous bone give an effect of fuzziness. This blurring of contour and detail of bone structure is due partly to fluid, partly to thickened synovial membranes and partly to decalcification. Bloody effusion into a joint may simulate the blurring of tuberculous disease. At the beginning, it is often difficult to recognize isolated or infiltrated tuberculous foci. The quality of the shadows must be interpreted. Errors are frequent, but the chance of error may be lessened if several roentgenograms are made in every suspected case of early joint tuberculosis and if one compares the suspected with the sound side, until great experience in the reading of roentgenograms has been acquired.

In doubtful cases, we must be suspicious of a roentgenogram which shows increased transparency with decreased accuracy of outline and bone detail. This is especially true in tuberculous disease of the carpals and the tarsals.

In later stages of tuberculous joint disease we may observe ulceration of the joint surface with irregularity of the surface of the articulation and enlargement of the articular space.

Still more advanced cases show blotches of more or less darker shade, indicating an area of tuberculous necrosis. There may be ulceration, sequestra, osteitis, osteophytes and abscess formation.

Particularly in tuberculosis of the dorsal spine, and occasionally also in tuberculosis of the lumbar spine, there may be seen a peri-spinal tumor indicating the site of the abscess. The peri-spinal tumor is especially well seen when it occurs at a level higher than the diaphragm.

Healed tuberculosis in joints is evidenced by a thickening in the cortex of the bone, probably compensatory for the loss of strength in the cancellous tissue. This appearnce is not peculiar to tuberculous lesions, however, but may attend any condition characterized by atrophy of the bone.

The x-ray aids us in arriving at some conclusion as to the activity of the focus. In active joint tuberculosis, even in a carefully made roentgenogram, there is blurring of the outline which Shenton has likened to a chalk drawing very much rubbed out, the general x-ray characteristic of active tuberculous joint disease being want of contrast and want of detail.

The rarefaction of bone in other forms of deforming arthritis is very different from that in tuberculous disease, the result being an increase in detail and corresponding improvement from the photographic standpoint.

Luetic Joint Disease. Of the various forms of joint syphilis the present paper will mention only Charcot joints. The x-ray findings in early syphilitic involvement of the joints are not characteristic. Unless there develops a synovial effusion, or unless one discovers the evidences of a characteristic osteoperiosteitis, the evidences are not likely to be different from those of acute articular rheumatism. As diagnostic characteristics of syphilis Redard cites the clear blotches at the level of the epiphyses, indicating the presence of an inter-osseous gumma and the evidence of a rarefying osteitis; the increase in the circumference of the bones seen especially in the epiphyseal region; the osteophytes; the irregularity of certain portions of the bones and spontaneous fractures. The roentgenogram does not record the exact size of gummatous deposits which are not ossified, since new-formed bone is still permeable to the roentgen ray. The ossifying process involving the capsule gives rise to a varying quantity of osseous debris within the joint, well shown in roentgenograms of typical cases.

From the x-ray standpoint the typical findings in tabetic arthropathy are the extensive proliferating and destructive processes which run a parallel course and lead to extra-capsular ossifi-

cations due to bone formation in the fibrous layer of the joint capsule. Fluid in the joints, subluxations and pathological fractures, and often the absence of pain even on motion, are other diagnostic features of importance. The bone lesion sometimes resembles sarcoma. In a Charcot ankle there is likely to be an inversion of the foot, owing to the absorption of the lower end of the tibia and possibly also of the astragalus. In contra-distinction, Pott's fracture is always an eversion fracture.

In incipient cases differential diagnosis is difficult. The absence of pain is a constant finding in these cases, yet in some instances the movements of the joints are exceedingly painful.

In the tabetic form of syringomyelia, arthropathy occurs in about ten per cent of cases. Thickening of the bones in the region of the epiphyses, osseous layers which are poor in calcium salts, and an atrophic condition of the bones, and occasional joint symptoms sometimes appear on account of interference with the trophic impulses. During healing, after fractures in this condition, there is sometimes observed excessively hypertrophic callous proliferations and ossifications in tendons. Alban Koehler has described the following characteristics in the roentgenogram of the hand in a case of syringomyelia: 1. Thickening of the pulp of the fingers, especially the distal extremity; 2. The last phalanx is hypertrophied, atrophic in structure; 3. All the bones of the hands are atrophic.

Gonorrheal Arthritis. Gonorrheal arthritis is attended by the same bone changes as are seen in other forms of infectious arthritis. There is the same translucency of all the bones of the joint and those in the neighborhood of the joints.

Traumatic Arthritis. As the result of trauma, we find changes which may be described as atrophic arthritis or hypertrophic arthritis, or mixed atrophic and hypertrophic arthritis. The characteristic of this form of arthritis is that it occurs only in the injured joints and in the joints distal to it. So far as the writer is aware, the x-ray is not otherwise able to differentiate between the traumatic arthritis and that due to senile changes and metabolic influence.

Streptococcus Arthritis. Through the courtesy of Dr. D. J. Davis, in connection with the laboratory work of St. Luke's Hospital, Chicago, the writer has had the opportunity of studying, roentgenographically, the joint changes occurring in rabbits into whose ear veins there was introduced a culture from the tonsils of patients suffering from rheumatoid arthritis. There occurred the progressive joint swelling with later a mixture of atrophic and hypertrophic changes until finally the picture of rheumatoid arthritis in the human was duplicated in the animal. There was also noticeable a periostitis involving the contiguous portions of the shafts of the long bones near the affected joints.

THE ETIOLOGY AND PATHOGENESIS OF RHEUMATOID ARTHRITIS.*

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In this discussion of arthritis, I shall not attempt to cover the entire field of its pathology, but will limit myself to what I consider its more important phases and especially to recent work that has been done along this line. I wish to state at the outset, that in view of the bewildering and often meaningless nomenclature of arthropathies, I shall whenever possible adhere to an etiological classification; for with our advancing knowledge of this subject, such a classification is rapidly becoming more and more feasible and practical.

The true gouty arthropathies and the arthropathies occurring in nervous diseases (tabes, syringomyelia, etc.), I shall pass by since they are types of arthritis whose etiology and nature have been fairly well determined. The true traumatic varieties also will not concern us here.

The infectious arthropathies include a large group of joint disorders, some of which are well known, others not. The acute joint infections caused by pneumococci, streptococci, staphylococci, gonococci, meningococci, typhoid bacilli, etc., are all fairly well known. They may at times terminate in more or less chronic alterations giving rise to various kinds of deforming joint lesions. There are also the joint infections of syphilis and tuberculosis, subacute or chronic from the beginning. Acute rheumatic fever or acute articular rheumatism, we may also now consider a definite infectious disease caused by the diplococcus rheumaticus as described by the

*Read before the sixty-fourth annual meeting of the Illinois State Medical Society, Decatur, Ill., May 19, 1914.

English observers, Poynton & Payne, Beattie and others, and especially by Rosenow in this country. The above conditions while often presenting their problems and difficulties in the way of diagnosis, treatment, etc., may be considered as solved problems from an etiological standpoint and will not concern us further.

This brings us to the discussion of a large group of chronic joint disorders which for a long time have been considered by many as "probably" infectious. They are referred to by a variety of names. Some writers call them (primary) chronic progressive polyarthritis, a very good descriptive term, but certainly unwieldy for a clinical term. Commonly they are called "arthritis deformans," an anatomic term used especially by Virchow. For this condition it is a most unsatisfactory name, its significance being simply a deformed joint for which so many well-known infectious agents, like the tubercle bacillus or the gonococcus, may be the cause; or which may be caused by trauma or metabolic disorders. This term should certainly be discarded. Rheumatoid arthritis as used by Garrod would seem to be a much more suitable clinical term. The line separating this condition from the more chronic processes caused by the common infections referred to above is not at all clear; it is often difficult and at times impossible to clearly differentiate them clinically or anatomically.

I wish to discuss chiefly from an etiological standpoint this condition in which an infection usually with streptococci, often but by no means always originating somewhere about the head and the upper respiratory tract plays a significant role. These cases present, as a rule, subacute or chronic symptoms of joint disease a striking feature of which is its persistence and tendency to cause more or less permanent change in the joints. The onset may be fairly sudden in many cases, but in others it may be very insidious. Indeed two types have been differentiated; one, the more acute or subacute form, in which there is a more or less sudden onset with fever and tender, swollen joints followed later by subsidence and repeated recurrences; the other, in which the whole course is very slow, but as a rule gradually progressive. The history in such cases is always important and the diagnosis may be made at times with considerable certainty from a previous infection, such as tonsilitis, pharyngitis, ulcerated tooth, etc. Indeed the history may have much the same significance in these cases as for example, a history of gonorrhea, has in the diagnosis of gonorrheal arthritis.

The pathological anatomy varies considerably not only in different individuals, but in different joints in the same individual; or indeed even in the same joint. Productive inflammation leading to the so-called hypertrophic type may be a conspicuous feature in certain joints. Degenerative changes leading to the atrophic forms are common also. The one or the other of these processes may predominate, but often they go on together in the same joint. Proliferation of fibrous tissue and pannus formation is often present, extensive adhesions at times resulting. Degeneration and fibrillation of the joint cartilages may occur, this being not infrequently one of the earliest changes noted. Marked destruction occurs at times leading to an exposure of bone with consequent bony alterations in the epiphyses. At the margins are exostoses, nodule formation (Heberden) and lipping. The synovialis shows irregular thickenings, hyperemia, destruction and villous formation. The blood vessels reveal endarteritis, marked thickening and sclerotic changes. Hemorrhages and edema often occur in various places about the joint. Microscopically there appears round cell and plasma cell infiltration about the synovialis and periarticular structures. Microscopic degeneration of cartilage and absorptive and osteoid changes in the bone are noted. Such, in brief, are the varied pathological processes that may go on in and about these joints.

Focal sources of infection in such cases include most commonly, tonsils, teeth, pharynx, sinuses, middle ear; other sources at times are noted. Examination of suspected foci from many cases has revealed with remarkable constancy the presence of streptococci of one kind or another. In the crypts of the tonsils which are found so commonly diseased, one finds large numbers of these organisms often to the exclusion of practically all other germs either aerobic or anaerobic. The cultures should be made carefully from the depth of the crypts after incising the extirpated organ with a sterile knife, otherwise the contaminating mouth streptococci,

which are usually of a different type, may interfere.

The tonsils in these cases may not be enlarged. While usually they are somewhat hypertrophied, often they are small and at times submerged. These latter are dangerous because they are easily overlooked. Proper drainage in such organs is naturally interfered with. The color is diffusely red or bluish red; at times large hyperemic areas appear. In some instances on slight pressure a purulent exudate exudes from the crypts consisting of pus cells, mycelial granules, and diplococci. It should be stated that in some patients there is nothing in the appearance of the tonsil to make one suspect a pathologic condition. In a number of cases the tonsils had been previously only partially removed or sliced off with a tonsillotome. Such operations are not only not effective, but are positively harmful on account of the formation of fibrous tissue at the cut surface which tends to occlude the crypts and prevent drainage.

Microscopic examination of the tonsils usually reveals clusters of polymorphonuclear leucocytes in the crypts, especially in the epithelium lining them. At times infected foci occur beneath the epithelium and small abscesses may appear in the tissue. The blood vessels may be hyperemic and plasma cells about vessels and beneath and in the epithelium are always present, often in very large numbers.

I have examined the pus from infected teeth and gums in a number of cases of arthritis where there was good reason to think the two processes were associated. Likewise in such material streptococci are usually predominant. It is interesting that in such infected foci, B. fusiformis is often found growing with the streptococci. This association as we shall see later, is true also in infected tonsils where in the form of peculiar raylike granules the streptococci and fusiform bacilli grow together evidently in symbiosis.

The streptococci cultivated from the diseased tonsils and teeth have been carefully studied. They are not all identical. Most of these organisms have a moderately wide clear zone of hemolysis on blood plates, though there is considerable variation in the width of zone. The colonies are small, gray and have little tendency to spread. They are not mucoid or watery and the cocci are not encapsulated. They all ferment dextrose, saccharose and maltose. They do not ferment inulin or raffinose; some ferment mannite and others do not. Their reaction on lactose is not constant; most of the strains ferment it, a few do not.

Some of the streptococci met with have a much narrower zone of hemolysis and which may be slightly grayish or turbid. The zone may not appear for 48 hours. The margin is less distinct and the colony smaller. The difference between this and the first streptococcus mentioned is sufficient to enable one to separate them, especially when they occur on the same plate. Morphologically the cocci are perhaps slightly smaller and as a rule, though not always, they form shorter chains than the other streptococci. They may produce arthritis when injected into animals, but they are, as a rule, much less virulent. These cocci were met with in a number of cases associated with the more hemolytic variety and sometimes they are met with practically pure. While often the differentiation of these varieties is clear this is not always so and not infrequently intermediate or transition forms are seen.

Not uncommonly tonsil plugs consisting of grayish firm masses were found in the tonsils. These bodies are common in individuals, being found in from 20 to 30 per cent of adults. While making observation on the anaerobes of the tonsil, I have made a special study[1] of these masses and find them to consist of raylike clusters of filaments and long bacilli and at the margins are brush-like ends which may be mistaken for clubs. These bodies have not infrequently been confused with actinomyces granules. They are not even remotely related to actinomyces, but consist of these radiating threads and rods which I have shown are simply the long forms of fusiform bacilli. They are strict anaerobes. In association with these fusiform bacilli and apparently growing in symbiosis with them are always two other organisms, namely, a spirillum which conforms in its morphology to S. refringens and a streptococcus. I might say that these organisms do not always occur in the form of the definite firm masses or granules described above, but often as loose clusters lying in the tonsillar crypts and which can be readily broken up. Such groups are quite commonly seen in tonsils and especially in the submerged and diseased

1. Davis, Jour. of Inf. Diseases, 1914, XIV, 144.

tonsils, where proper drainage has been interfered with. These bodies and masses may be easily expressed from the crypts and lost in the process of extirpation. The streptococci always found in such bodies are interesting in many respects. Morphologically they are rather small, usually in pairs and gram positive. In their cultural reactions they vary considerably, some forming a wide hemolytic zone on blood agar plates, others forming a small, narrow, slightly turbid zone appearing only after 24 hours; still others form a green halo about the colony. On the anaerobic plates and tubes which were repeatedly made in the cultivation of the fusiform bacilli these cocci grow well and indeed they often grow better than on the aerobic plates. On sugars they behave essentially like the other streptococci referred to above, some fermenting mannite and others not.

It will thus be seen from the above that we find a variety of streptococci in the diseased foci in some respects differing slightly among themselves, but in a general way belonging to this group, all are pathogenic to some degree for animals, but as a rule less so than are the ordinary pyogenes strains.

That streptococci have an etiologic relationship to rheumatoid arthritis based on many observations in addition to these that I have made myself. The literature contains many articles in which are described the finding of streptococci in foci and even in the joints and joint cavities. The English workers have made many examinations in such cases. In further support of the streptococcal origin of this condition is the work of Rosenow,[2] who recently reports finding in the regional lymph glands in certain cases of arthritis streptococci which often grow better under partial anaerobic conditions. These streptococci vary somewhat in their properties and are often associated in mixed cultures with other organisms (B. Welchii, straphylococci, etc.). They are not hemolytic under the conditions observed. These organisms may well be the cocci disseminated from distant primary foci such as the tonsils and indeed remind one closely of the cocci which I have observed in the ray-like granules growing with B. fusiforms in the crypts.

When the streptococci are injected in proper doses intravenously into rabbits, they invariably localize in or about the joints, producing as a rule multiple arthritis. This condition has been produced in several hundred animals. In a sense the cocci are not highly virulent, large doses (several tubes) being necessary to kill guinea pigs by intraperitoneal injections. The joints most commonly affected in the animals are the wrists, phalanges, knees and ankles, though practically every joint in the body has at times been seen to be involved. The infection in the joints usually appears a few days after inoculation and continues for one to three weeks or longer. Relapses may occur. Not infrequently the changes in the joints become chronic with considerable deformity and with the formation of exostoses, lipping of margins, pannus formation and other hyperplastic changes. At times such animals live for many months, becoming badly deformed and crippled and ultimately dying in an emaciated condition.

Early in the course of the infection in these animals cultures from the joints usually yield streptococci. They tend to disappear and at times even after the second or third day no growth may be obtained. In the chronic joints after weeks or months the streptococci may still be found in the exudate, though often they are not. The exudate early is slimy, mucoid and glairy, later becoming, as a rule, more purulent. In very old joints it may be gelatinous in character.

In about 10 per cent of the animals so inoculated a definite endocarditis results. Also occasionally a fibrinous pericarditis is seen. Nephritis and other lesions are also noted. A careful histological study of these joints and the heart lesions have been made by Dr. Leila Jackson[3] of Chicago. She finds in the heart muscle often focal lesions consisting of clusters of round cells and in older lesions, peculiar large giant cells. Cocci may be found in these nodules, especially early, in large numbers. A striking feature of these lesions is the relative absence of a regional leucocytic infiltration. She likewise finds peculiar and characteristic nodules in the periarticular structures and in the synovialis. The bacteria enter the joint cavities as early as 10 hours

2. Jour. A. M. A., 1914, LXII, 1146.

3. Experimental Rheumatic Myocarditis. Jour. Inf. Dis., 1912, XI, 243. Also Experimental Streptococcal Arthritis in Rabbits. Jour. Inf. Dis., 1913, XII, 364.

after intravenous injection apparently from the rich meshwork of synovial capillaries in the lateral plicae. In the ends of the bones, particularly about the epiphyseal cartilages, at times definite infarcts due to bacterial emboli are seen extending inward to the joint, usually subjacent to the periosteum. These experimentally produced lesions in animals bear only certain resemblances to lesions described by others in the heart and joint structures of the human in cases of acute rheumatic fever.

It should be pointed out that hemolytic and other forms of streptococci may occur in the crypts and on the surface of tonsils not only in ordinary streptococcus tonsillar infections, but also in normal tonsils. These streptococci often cannot be distinguished from the streptococci found in the tonsils of those patients suffering with joint trouble. Consequently the presence of streptococci in cultures should be carefully interpreted. They may or may not be significant, just as finding pneumococci in the throat or sputum may or may not be significant for the diagnosis of lobar pneumonia.

Observations have been made in a large number of cases treated by extirpation of infected foci, chiefly tonsils, and also after the administration of autogenous vaccines. I wish to discuss this side of the question only from the standpoint of specific reactions and their bearing on the etiology.

On the whole the administration of vaccines seemed to give good results. In a few cases the vaccines appeared to act like a true specific, the patients rapidly improving both subjectively and objectively. Many cases were apparently not influenced materially by the vaccine and in some the symptoms appeared to be aggravated.

In a number of instances a prompt reaction or hypersusceptibility was noted after relatively small doses of the vaccine. This undoubtedly corresponds to the constitutional reactions noted in other diseases, as for example in gonorrheal arthritis after gonorrheal vaccine. It is an invaluable test when positive of the specificity of an organism. Furthermore, in three cases acute attacks or exacerbations appeared immediately following the removal of the focus (tonsils). This phenomenon has been noted by many observers and arises probably as a result of the dissemination of the infectious agent through the body.

With reference then to these specific constitutional reactions we may say that the frequent relief following the expiration of the focus, the instances of acute exacerbation immediately after its removal, the increased susceptibility of some of these cases to the streptococcus vaccine all speak strongly in favor of these streptococci being in some way concerned in the etiology of rheumatoid arthritis.

The subject of the relation of vascular changes to arthritis is a very large one. This entire question has recently been fully discussed in an extensive monograph by Wollenberg,[4] in which a bibliography of over 140 articles gives one some idea of the extensive studies made along this line. Wollenberg maintains that sclerosis and vascular obstruction partial or complete is always found and indeed is the direct cause of the changes in arthritis deformans. The causes of the vascular alterations are numerous, being such factors as trauma, infections of various kinds, intoxications, senility, etc. That the vascular changes may be of great importance in certain cases there is little doubt. We have noted in our deforming streptococcus arthritis in rabbits, vascular changes consisting of inflammatory proliferations about the vessels supplying the joint. Embolic processes involving the ends of the bones have also been seen and described in these animals. Experimental obstruction of vessels may lead to atrophic and deforming alterations. In old people undoubtedly the vascular sclerosis is important and in it the so-called senile arthritis may well be the sole factor in causing deformities of the joints, a process exactly analogous, for example, to the atrophic and scarring changes produced by arteriosclerosis in a kidney.

In discussing the etiology of chronic arthropathies, mention should be made of alterations possibly dependent upon or related to metabolic processes. Metabolic arthritis is an old term and the view that abnormal changes in bones and joints may be associated with an abnormal metabolism naturally is intimately connected with the study of gout. Besides the gouty arthropathies there exists evidence indicating that in other chronic deforming arthropathies there is

4. G. A. Wollenberg. Aetiologie der Arthritis deformans. Stuttgart, 1910.

more or less constantly a disturbance of metabolic processes, this disturbance being, however, especially in relation to calcium. Lindemann,[5] for example, in a careful study of the metabolism in 11 cases of what he calls chronic deforming arthritis and which from his description evidently correspond to rheumatoid arthritis finds very constantly a distinct retention of calcium when such individuals are placed on a carefully regulated diet. These observations support the work of Hirschberg[6] who obtained similar results, though with perhaps less carefully controlled experiments. In gout, on the other hand, it is interesting to note that there is, in addition to the purin disturbance, an excessive loss of calcium by the body. On the basis of these findings, Lindemann recommends for cases of rheumatoid arthritis a diet poor in calcium, with which he claims distinct improvement. Lindemann also calls attention to the fact that in his series of cases of chronic arthritis in addition to the calcium retention there was evidence on close examination of a more or less distinct disturbance of the inner secretions in many of his cases (exophthalmos, enlargement of thyroid, relative lymphocytosis, eosinophilia, anomalies of menstruation), as well as the presence of foci of infection. Along similar lines is the recent work of Pemberton,[7] who reports such remarkably good results with a diet of low caloric value. In his series of 17 cases he observed rapid and permanent improvement, in many instances amounting to cures, with such a carefully regulated diet.

That the animal organism is highly sensitive to diet may be illustrated well by animal experimentation. In our laboratory recently, Dr. J. J. Moore and the writer have been studying the effect of certain diets on guinea pigs. On a diet of pure cow's milk, raw or boiled, in from 14 to 22 days remarkable alterations occur, especially about the joints, in the ends of the long bones and in the muscles of the extremities. These changes result in marked joint deformities, exostoses, and at times pathological fractures. The first changes appear to be hemorrhages which cause disturbances in the nutrition of the bones, especially about the cartilages. Other changes are hyperemia and bleeding from the gums, loosening of the teeth, etc. If we attempt to find its analogue in the human it perhaps resembles more closely scurvy than any other condition, though there are points of resemblance to rickets, to osteogenesis imperfecta, to the purpuras, to erythemas, to multiple ecchondroses and exostoses, to anaphylactic intoxications and to some cases of chonic deforming arthritis. The disease is perhaps not exactly identical with any of these conditions; but the point I wish to bring out is that we have here an example of remarkably definite changes affecting especially the osseous and articular system, produced and controlled experimentally in animals by a slight alteration in diet. I think all of these various conditions should be more carefully studied from this point of view.

Now what might be the relation of these metabolic disturbances to the infection? Which process is primary? And let me say that this is not a new question. We must frankly admit, I think, that these metabolic changes and constitutional defects might be the result of infection; but on the other hand we must admit that it is possible that they might furnish the proper soil for an infection. The one or the other or both may be true. But in view of the sensitiveness of the bony system to a one-sided diet it does seem reasonable that, in a given case of chronic deforming arthritis, with its various osseous and articular alterations caused, let us say primarily by an infectious agent, in order that proper reparative and healing processes should go on, a proper and well-balanced diet should be most carefully selected. Nearly all writers on the treatment of arthritis have emphasized the necessity of a properly regulated diet, some for one reason and some for another; and I think that we may have in these animal experiments an experimental basis for some of the benefit which seems to have been derived in this way.

Such a view point as this I think might well be our working hypothesis in the further study of these chronic arthropathies, and this I believe is the most rational viewpoint which the student of etiology and pathogenesis of this condition can present to the clinician at the present moment.

5. Zeit. f. Exp. Pathologie und Therapie, 1914, XV, 436.
6. Berl. klin. Woch., 1911, LXVIII, 2056.
7. Am. Jour. of Med. Sci., 1913, CXLVII, 428.

THE MEDICAL MANAGEMENT OF CHRONIC ARTHRITIS.*

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The subject of this paper will be limited to a discussion of the treatment of chronic deforming arthritis and the usual coincident myositis.

The disease is one of the most difficult to manage of all conditions which afflict mankind. To relieve the patient will require knowledge, skill, patience and a constant optimism on the part of the physician. It may be necessary to keep the patient under a management extending over months or years. A part of this time must be spent in a hospital where all of the aids of diagnosis, preliminary surgery, bacteriological studies and the necessary disciplinary management may be commanded.

Elsewhere[1] I have attempted to explain arthritis deformans as an infectious disease and have cited the experimental bacteriologic and pathologic work of Davis[2], Jackson[3] and Rosenow[4] in connection with our clinical research.

Methods of Treatment.—The first and very important part of the treatment is to locate the portal of entry of the infectious microorganisms and to study the general condition of the patient. The preliminary thorough investigation of each patient enables one to know the exact degree of joint and muscle involvement. All progressive types of the disease may be checked and unless destructive bone, cartilage and other tissue changes have occurred, recovery may ensue.

To locate the focal origin of the systemic disease is not always easy. One must investigate all possible sites. Our experience would indicate the following regions of focal infection with a frequency and importance in the order named: faucial tonsils and dental alveoli (with secondary cervical lymph nodes) of about equal importance; sinuses of the head; intestinal stasis, due to abnormal anatomy; chronic prostatitis and vesiculitis seminalis; pelvic disease of women; chronic pyelitis; chronic appendicitis; chronic cholecystitis and chronic abscesses anywhere else in the body. Any one or more of these foci may coexist. Consequently it often requires repeated examinations aided by specialists in diagnosis of the ear, nose, throat, teeth, pelvic organs, etc. Blood counts and cultures, radiograms of joints and jaws and of the gastrointestinal tract, after bismuth meals are frequently necessary preliminaries.

The next step is the removal of the tissues involved in the focal infection or a correction by operative or other means of the condition which permits the existence of the local infection. If the focal points of infection are not all removed failure will result. Hasty removal of the infected faucial tonsils may still leave other infected foci in the jaws or sinuses of the head or elsewhere as we have found, much to our embarrassment.

The infected tissues and exudates should be examined for the dominant bacteria by cultural methods. This affords a knowledge of the character of the focal infection and a means of treatment by autogenous vaccines. The majority of these patients have been ill for years. Through long suffering, overuse of drugs, exhausting baths, faulty diet and other measures, they are usually anemic, more or less emaciated, discouraged, nervous and debilitated.

Rest treatment is necessary at first. This must vary in length of time and character dependent upon the individual. Continuous bed treatment may tire and for that individual an easy chair may be used a part of the day. Good air and sunshine are essential. With proper clothing a protected sunny porch may be utilized. Good, wholesome, nourishing food of a mixed character should be given. The malnutrition calls for a maximum of protein in the form of meat, fowl and fish. Fruits and green vegetables should be used freely. They will aid in preventing the putrefactive process of the intestinal contents. Carbohydrates, fats, milk and its products may be liberally used.

Restorative tonics of iron, quinina, strychnina and other drugs may be indicated. No specific restoratives are required. The syrup of the iodid of iron, Blaud's mass or any other preparation may be used. Fowler's solution, cacodylate of soda or any other form of arsenic may be used with iron. Laxatives are usually required. Compound licorice powder, compound rhubarb pill, preparations of cascara sagrada or any other simple drug is indicated. Nervous patients may occasionally require a moderate dose of one of the bromides. The salicylates in moderate amounts will palliate the pain incident to tire, etc.

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The environment of the patient must be subjectively pleasant. Optimism must be the sentiment of every one who comes in contact with the sufferer. The irritability and frequent periods of despondency must be met with a patient, kind and considerate attitude.

The method of joint, muscle and other tissue infection is hematogenous. Bacterial emboli lodge in the arterioles causing endoarterial proliferation, partly or wholly plugging the vessels. Hemorrhage may occur into the tissues. The strains of the streptococcus, which caused chronic arthritis and myositis, live and multiply in a low oxygen tension. They cause occlusion of the arterioles, deprive the infected tissues of nutrition and oxygen and thus produce a condition favorable to their own development. Furthermore, Oxhausen[5] has shown that ligation of some of the arteries supplying a joint will produce an aseptic chondro-osteitis with subsequent metabolic changes resembling arthritis deformans. The bacterial embolism and consequent occlusion of the arterioles supplying joint tissues, muscles, etc., with nutriment is a rational explanation of the continued infection and of the metabolic changes of joint tissues, muscles, fasciae, aponeuroses, etc. This also explains the progressive nature of the disease. The streptococci in the infected tissues multiply and serve as a constant source of infection of other regions. Bony overgrowth, ankylosis and muscular contraction occur because of lack of nutrition,—want of blood supply.

The main problem then is to get rid of the systemic infection and finally to overcome its sequence,—the deformities.

As stated above, primary rest is necessary as long as motion causes pain. In varying time, four to six weeks, passive motion with gentle massage may be begun. The amount of passive exercise must be gauged by the effect upon the individual. The patient, always more or less nervous, tires easily. To these patients tire is painful. Day by day the exercise must be increased. The rest, restorative measures (food, etc.), should improve the general nutrition and blood circulation. The passive exercise will gradually improve the local blood circulation and oxygen supply to the infected tissues. In due time active exercise is added. This must be systematically and regularly performed. Usually a nurse or masseuse should teach the patient the lighter forms of calisthenics.

These measures, namely: rest, restorative food, pure air, environment of optimism, graduated passive and later active exercises will overcome the debility, malnutrition and poor general circulation. They will also help to restore the local circulation and oxygen supply to the infected tissues. By these measures the natural defenses of the body are improved, the infected tissues become richer in oxygen and consequently a poor culture medium for the invading micro-organisms. Finally the destructive progressive metabolic changes of the tissues cease. Gradually one may note favorable changes in the joints. Atrophied, contracted muscles increase in bulk and functionate. But one dare not relax the control of the patient. Daily systematic passive and active exercises increased gradually must be continued until a relative restoration occurs. Otherwise a relapse is apt to occur because of neglect of one or more of the above important factors relating to nutrition, general and local blood supply, etc.

These hygienic measures have been used for years with more or less success in the treatment of this disease. We can understand failures and inexplicable relapses by the neglect to remove the dominating etiologic factor, the primary focus. Reinfection would occur as soon as the natural defenses of the body were lowered.

Specific Treatment.—Autogenous vaccines made up of the dominating strains of streptococci obtained from the tissues and exudates of the focus of infection have been used by us. The dose used has been from 100,000,000 to 1,000,000,000. The large dose does not seem to be any more effective than the small one. The opsonic and phagocytic index has been extimated in many patients before and after vaccination. Both indices are increased as a rule after a considerable period. Vaccination with a large dose usually causes some soreness, redness and swelling of the skin at the point of inoculation. Focal reaction, in the form of increased soreness and aching of the involved joints and muscles sometimes occurs within twenty-four hours after the vaccination. General reaction in the form of general discomfort, rise of temperature, etc., rarely occurs. Some patients express a feeling of improvement soon after the vaccination. The evidence of focal and

general reaction is entirely subjective and therefore of doubtful import.

The use of autogenous vaccines appears to increase the defenses of the body as judged by a study of the opsonins and phagocytic index. How much of this improvement is due to the general management described above is important when one considers the use of vaccines as a specific therapy. If one is to use antigenic inoculations of any kind it would seem rational to use autogenous ones. It is my opinion that the general measures of management and treatment are absolutely necessary to succeed in helping these patients. To this management may be added autogenous vaccination without fear of harmful results. The use of stock vaccines seems less rational. The use of vaccines in the treatment of chronic deforming arthritis without attempting to find or remove the dominating etiologic focus of infection and without a systematic hygienic management is irrational and most unjust to the patient.

Other Measures of Management.—The improvement may be hastened by mehcanical measures. Bier's method of flooding the infected muscles and joints with blood, by means of the proximal application of an elastic bandage may be practiced after the patient is well on the way of improvement. When used too early, with swollen, tender joints or used too long at a time, more harm than help may occur. The forcible stretching of contracted tendons and muscles under gas or ether anesthesia is time saving. This cannot be done until the patient has reached the stage of beginning active exercise. Splints, braces and plaster casts may be applied to correct deformities, but should not be worn too long. Any apparatus which interferes with the measures used to restore the blood circulation to the infected parts is contraindicated. A cast worn for months, still further diminishing blood supply, may cause complete bony ankylosis.

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THE ROLE OF THE PYLORUS IN THE ETIOLOGY AND TREATMENT OF GASTRIC ULCER.*

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We may for our purposes divide ulcer into two varieties—acute and chronic. The former are often multiply; according to Fenwick, in fifty per cent of the cases. They may be situated anywhere in the stomach and bear no particular relation to the pylorus. They are probably simply superficial ulcerations of the gastric mucosa. They may be due to a variety of causes, first, and apparently most frequently, to infections elsewhere in the body through the blood. Smithies reporting on a series of cases proven at operation found that 66.3 per cent gave a previous history of cholecystitis or appendicitis. Bolton reports multiple ulcerations in chronic infections of the leg, pneumonia, tonsillitis, etc., Dieulafoy in pneumococcus septicemia. Experimentally they have been produced by intravenous injections of staphylococci, streptococci, bacillus coli, bacillus dysenteriæ, etc., and, of course, other varieties of toxic ulcers, as in uremia and eclampsia, and traumatic ulcers are well-known. The majority of these cases, unless they happen to erode a blood vessel or perforate and cause peritonitis, give no symptoms whatsoever.

Chronic ulcers, on the other hand, are most frequently single and in at least seventy-five per cent of the cases situated near the pylorus. It is reasonable to suppose that they arise from the acute variety, but how is a more difficult question. It is needless to enumerate the large number of theories which have been advanced to account for the non-healing of acute ulcers. Suffice it to say that it has been shown experiment-

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ally that while it is an easy matter to produce the acute variety, yet in practically all cases ulcers so produced heal readily in three to four weeks. The theory which at the present time appears to me to fit the facts most accurately is one which has resulted from radiographic observations. It has been noticed by a number of men independently in ulcer cases, that spasmodic contractions of the stomach, both at the site of the ulcer and at the pylorus, are frequently present. These are not organic, for they disappear under anesthesia, and sometimes even with an atropin injection. These contractures are probably due to irritation of the base of the acute ulcerative process, and may occur anywhere in the stomach, but most frequently at the pylorus. As a result of this pylorospasm then, food is retained in the stomach a longer time than normal, i. e., motility is impaired, gastric juice is secreted also for a longer period, and we have a so-called hypersecretion, which is probably merely another name for hyperacidity. Another result from this pylorospasm is increased peristalsis, especially noticeable at the pyloric end of the stomach. Let us now take as an example a stomach, the site of a number of acute ulcerations, one of which is situated near the pylorus. As a result of the pylorospasm and the resulting increased peristalsis, the food particles are ground against the base and side of the ulcerated area, resulting in an inflamed area which may become indurated or, being exposed for an abnormally long period to the action of a hyperacid juice, is actually digested away, and we have in the one case a callous ulcer, in the other a spreading ulcer, both chronic. Ulcers situated elsewhere in the stomach, where peristalsis is not so violent nor the gastric juice so active, heal far more readily.

Of course, ulcer at the pyloric sphincter will mechanically impair motility.

Experimentally, we have been able to show, first, that by producing an acute ulcer and then a partial pyloric obstruction there results a hyperacidity or hypersecretion, with resulting delay in the healing of ulcers so produced, and second, that such delay results frequently in chronic pyloric ulcers, comparatively rarely in chronic ulcers of the fundus. These experiments will be reported elsewhere. These facts account for Fenwick's statistics mentioned above, acute ulcers being scattered in all positions in the stomach, chronic ulcer in seventy-five per cent of the cases at or near the pylorus.

That such impaired motility occurs clinically has been amply demonstrated. To quote one group of statistics: Of 404 cases from the Mayo clinic, demonstrated by operation, Smithies found 65.3 per cent with impaired motility. Therefore, the first relation of the pylorus to chronic ulcer is as an etiologic factor. It further plays a rôle in the symptomatology in the production of the so-called late pains of Moynihan, who considered that a burning pain coming on two to three hours after eating and possibly also at night was sufficient grounds for a diagnosis of duodenal ulcer. The French have for many years called this symptom-complex the pyloric syndrome, and considered it due to ulcers situated near the pylorus, whether on the gastric or the duodenal side. A satisfactory explanation of these pains is that of Hertz, who believes that when the free hydrochloric acid is at its height, the irritation of the base of the ulcer reflexly produces the increased peristalsis of the antrum and the pylorospasm, as mentioned above, and that the consequent rise of intragastric pressure is felt as a painful sensation. Of course, the presence of increased acidity on the *normal mucosa* or even of normal acids on a hyperesthetic mucosa may produce the same increase in intragastric pressure, and we will find the same syndrome present in reflex hyperacidities, as actually occurs occasionally in gallbladder or appendix disease without any gastric ulcer, or in neurasthenia, a condition which has recently been re-christened vagotonia.

A further consequence of this theory is, that ulcer anywhere in the stomach (contrary to Moynihan's dictum), if sufficiently irritated, may cause this same group of symptoms. For example: L. W., forty-nine years of age, has had gastric disturbance at intervals for thirteen years, characterized by pain about two hours after meals. Sometimes awakened at night by same pain. Relieved by eating and by vomiting. X-ray and operation showed a callous ulcer on the lesser curvature, well towards the cardia. He had impaired motility, but no hyperacidity. An example, then, of late pains, with the seat of the ulcer a considerable distance from the pylorus. To sum the matter up, Moynihan's typical

duodenal pains *may* be due to ulcer of the duodenum, or more broadly to ulcer near the pylorus whether on the gastric or duodenal side, but may also be due to ulcer anywhere in the stomach, or to a reflex disturbance from any diseased abdominal organ which calls forth an increase in intragastric pressure sufficient in degree to be painful.

The second class of pains in which the pylorus is concerned is due to adhesions in the region of the pylorus. These are among the so-called early pains, and can not be differentiated clinically from pains due to peritoneal irritation at any part of the stomach, and are produced at the time when peristalsis reaches its maximum, namely, fifteen to twenty minutes after beginning to take food. They are due to pressure or pulling on the sensitive subperitoneal tissues, and vary from a dull ache or feeling of fullness to a sharp pain.

The treatment of these conditions is, of course, a consequence of their interpretation.

First, we relieve the hyperacidity, since this causes pain and helps render the ulcer chronic, and, as stated above, even when we find the above symptom-complex and no hyperacidity, neutralizing the acid still relieves the pain. We may neutralize them with alkalies, bind the free acid with proteids, inhibit their secretion with astringents, belladonna, fats, or remove the excess gastric juice with the stomach tube, or combine several of these methods. For instance, we can bind the free acid and inhibit to some extent the excess secretion by giving a proteid-fat mixture, such as equal parts of milk and cream. By giving small amounts at two-hour intervals we can prevent the continued presence of free acid in the stomach. By giving alkalies, such as sodium citrate and burnt magnesia, in between the feedings, further neutralization is secured. Citrate is preferred by many to carbonate, as there is no carbon dioxide gas formed when in contact with acid. If sharp pain still persists, we may conclude that the presence of food alone may give rise to pylorospasm, and to reduce this give atropin in small doses, such as 1/200, until toxic symptoms arise. The great majority of uncomplicated ulcers will improve markedly with the above treatment and rest in bed in forty-eight hours. Papaverin has not yet been used sufficiently to decide as to its merits as an antispasmodic.

A milk and cream mixture alone soon becomes distasteful and we are forced soon to expand the dietary. Remembering our objects, which are to relieve the pylorospasm with its consequent hypersecretion and impaired motility, we give nourishment in the form which leaves the stomach earliest. It has been abundantly demonstrated that the more finely divided food is, the less secretion it calls forth, and the quicker it passes the pylorus. If we have all meat passed through a chopper and all potatoes and vegetables through a hair sieve, we have the so-called gastro-intestinal diet of Adolph Schmidt, and can expand our ulcer diet rapidly by the end of the second week in the vast majority of cases.

After about three weeks of alkali-atropin medication I have found it advantageous to give an astringent, such as silver nitrate, one-half grain, two to three times daily, in a dilute solution.

The results of ulcer treatment by medication are interesting. It has been repeatedly shown that even when the pain has ceased, that is, when treatment has been successful, another test meal may still show considerable hyperacidity and apparently the only factor markedly influenced is the motility, which is improved. In some few cases, therefore, with considerable stasis, it is necessary to give systematic lavage. In simple ulcers, which do not improve, and in all cases where the peritoneum is involved by direct extension and by formation of adhesions, we must resort to surgery, as, especially in the latter condition, diets are absolutely ineffective.

The battle is still raging between simple gastroenterostomy and more radical measures, such as excision or gastroenterostomy plus pyloric exclusion. Believing, as I do, that the majority of ulcers are amenable to medical treatment, and practically only complicated ones should be operated on, I do not believe that simple gastroenterostomy is at all sufficient in cases where an operation is really indicated, as only too often do we see those same patients return in six months to one or two years with even worse symptoms.

In ulcers of the lesser curvature with adhesions the ulcer should be excised and a gastroenterostomy done to prevent stasis and also to

neutralize free acid by regurgitation of alkaline duodenal contents.

In cases of ulcers near the pylorus, with adhesions, at least a pyloric exclusion must be done besides the enterostomy, and the point of occlusion must be far enough away from the pylorus so that the adhesion-bearing surface of the stomach will be excluded. It may be excised or closed up and left in place. As a result, when gastric peristalsis begins, there will be no pull on these adhesions, and consequently no pain.

DISCUSSION.

Dr. John Benjamin Haeberlin, Chicago: I am especially interested in this subject of gastric ulcer inasmuch as I have had considerable experience along this line. I believe that the newer type of pathology has opened up an avenue, or as it were a train of thought that we can follow up in many of these conditions. If we take our histories of gastric ulcers we will find that many times we have infective conditions occurring in such an individual at some previous time. It was thought many years ago that a duodenal ulcer frequently followed burns of the skin or abrasions of the skin of large nature. Now, there is a type of ulcer which is chronic that occurs in individuals who have a hyperchlorhydria, apparently of constitutional nature; that is, there is a type of individual who has an acid or hyperacid condition of the stomach. These individuals, if you will watch, are the individuals that later on you come to conclude are—and still later on by operation find—that they have ulcerative conditions at the pyloric end of the stomach or in the duodenum. The symptom most complained of is pain. Pain may be early or it may be later. Birmingham in his researches or in his experimental works shows that when we swallow food it does not fall into the stomach as into a sac, but food that is taken in first remains at the cardiac end of the stomach and then gradually comes over to the pyloric end, so that we feel as though the early pains are indicative of the ulcerations towards the cardia and the late-occurring pains are those caused in ulcerations of the pylorus and the duodenum. That, I think, is brought out clinically and in operative work, and I think that it is nearly always found to be true.

A few weeks ago I presented a number of cases of gastroenterostomy following ulcerative conditions of the duodenum at the Englewood branch of the Chicago Medical Society, with marked relief of symptoms. Of course, these cases were done recently, that is, in the last few months, but the cases that I operated on eight and nine years ago are many of them still in good condition, holding weight and have no stomach symptoms. The question of recurrence of these cases of ulcer is, I believe, very largely one of the technique of the operation, and very largely depends on the care of the patient regarding his diet and his general hygienic care.

Dr. J. C. Friedman, Chicago, closing: I tried to make the point that the situation of an ulcer cannot be diagnosed by the time of occurrence of the pains. Peristalsis begins, of course, in the cardia before it appears in the pylorus, but it takes only a fraction of a minute to reach the pylorus; therefore, we cannot locate the pain in the cardia because it begins in ten minutes after eating, and in the pylorus because it occurs two hours after eating. Pains occur in the cardia earlier for other reasons, as I mentioned; they will frequently occur in the cardia a few minutes after eating because there are adhesions there, and if we have adhesions in the pyloric regions pains will occur fifteen minutes after eating just the same as they do in the cardia when an ulcer is situated at that point.

As far as infections are concerned we are now on the infective track, so to speak, and every disease is considered as due to infection, but, unquestionably, a great percentage of ulcers is due to other causes than infections. Trauma, of course, plays a large rôle; just what the percentage is I do not know, but I do not believe that the majority of the ulcers are due to infections.

MODERN GASTROSCOPY WITH DEMONSTRATION OF THE SUSSMANN GASTROSCOPE.*

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Although this diagnostic method dates back in its origin about forty-six years, it is still a procedure used by very few. It is not my purpose to tire you with a lengthy theoretical discussion of the subject; but wish merely to touch in passing the chief facts pertaining to the development of gastroscopy, including in this the various types of instruments that have been used, and then to demonstrate the instrument I have been using, hoping also to be able to demonstrate its application on the living subject.

Kussmaul was probably the first clinician to explore the stomach endoscopically. In 1868 he described such an examination carried out on a "sword swallower." He used a direct-vision instrument, a 47 cm. tube with a diameter of 13 mm. In 1879, Nitze, after perfecting his cystoscope, constructed an indirect-vision gastroscope bent at a right angle; this was flexible and could be introduced in this condition. In 1881, Mikulicz constructed an indirect-vision instrument consisting of a rigid tube 65 cm. x 14 mm.,

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bent at an angle of 150 degrees at the junction of the middle and distal thirds. In 1895 Rosenheim brought out an indirect-vision apparatus consisting of two parts; an outer straight metallic tube and a second closed optical tube carrying also the inflating apparatus. The hollow tube was first introduced and through this the second tube. Two years later Rewidzoff substituted a soft gum-elastic tube for the outer metallic one. Kelling and Kuttner each brought out an indirect-vision gastroscope almost simultaneously (1896). These were both jointed and introduced in the flexible condition. Some five years later (1901) Killian went back to the direct method, which was first tried by Kussmaul thirty years before. However, Killian was able to obtain by means of either the Kirstein head lamp or the Caspar handle, much better illumination than was possible in the earlier work. The next step was for Chevalier Jackson (1905), to substitute distal illumination for the proximal by carrying a filament lamp at the corresponding end of the gastroscope. In 1909 Hill suggested that an instrument should consist of two parts (as did that of Rosenheim), an outer tube which is to be passed first and then to serve as a guide for the introduction of the second (optical) tube. He insisted that the first tube must be passed under direct vision. His ideas resulted in the Hill-Herschell esophago-gastroscope, in which the outer (the direct vision) tube is furnished at the proximal end with a detachable obliquely-placed window so as to allow of inflation of the esophagus during the introduction.

In comparing the direct with the indirect vision instruments, one is struck with the fact that for years after the method was tried by Kussmaul, the direct inspection was not resorted to. There are several good reasons for this. First of all the visual field must of necessity be small. Further one can not explore the various parts of the viscus as he can with an indirect vision instrument furnished with a revolving lens. However, when we come to consider the danger of the procedure, it must be admitted that that method which allows of the introduction of the tube under the vision of the operator (other things being equal) must be the safer. Perforation of the esophagus has occurred not infrequently during the blind passage of the usual type of indirect-vision instrument. This danger has been obviated in instruments of the Hill-Herschell and Rosenheim type. My chief objection to the direct vision instrument is that it must be introduced with the head of the patient in extreme extension ("sword swallowing" position), which is extremely uncomfortable, as I am sure will be appreciated by those of you who have been doing esophagoscopy. In making an indirect-vision gastroscope, inasmuch as lenses are used to carry the image of the visual field, it is possible to angle the instrument at any desirable location. Such an angle in the pharyngeal portion of the instrument obviates greatly the discomfort. However this angle does not make the examination much, if any, safer than the straight tube examination. If one can add to the apparatus the feature of flexibility during introduction, it seems to me that the danger during this part of the procedure can be fairly well eliminated. The Sussmann gastroscope embodies both of these features; and the chief characteristics of this instrument will now be mentioned. The total length is 74 cm., of which 24 cm. are in the proximal portion. The diameter is 12.5 to 13 mm. Approximately at the junction of the proximal and middle third is an angle of 150 degrees. Although the proximal portion is a rigid tube, nearly two-thirds of the instrument is flexible during the introduction and, of course, is made rigid before inspection is commenced. At the distal end is a light- and lens-bearing head revolving around the long axis of the instrument under the control of a small wheel in the hand of the operator. The instrument is furnished with a means for inflation of the stomach. Before beginning the examination it is necessary to have the pharynx well anesthetized: I have been using 10 per cent cocaine. Liquid paraffin is used as a lubricant. The examination is made with the patient in the right lateral position, placing sufficient support under the head to maintain the spinal column in a horizontal line. The head is held in the "military" position. Sussmann advises that the instrument be passed after the patient has assumed the position mentioned. In two or three instances I encountered difficulty in attempting to pass the instrument in this manner, but succeeded by adopting a method suggested to me by J. C. Friedman: namely of introducing the flexible instrument while the patient is sitting and then

before making the instrument rigid, having the patient assume the right lateral decubitus. However in an article published last month Sussmann advises against this method. In this same article he makes what appears to be a valuable suggestion for those cases in which it is difficult to pass the gastroscope, because of a spine more rigid than usual. While it is being passed, the patient lying on the right side, let the head drop a number of degrees, thus bringing the right side of the face nearer the table, and allowing the instrument to rest in the left side of the mouth. Also he states that this position allows the saliva, etc., to drain more readily from the mouth. It seems to me that the danger in passing the Sussman gastroscope is not much greater than the danger in passing a bougie, providing that each is done with equal care. Further, in my somewhat limited experience, the procedure has not seemed to cause extreme discomfort. At any rate the patients have not complained much. However, they all say that for a day or two after the examination there is a feeling of rawness in the lower pharynx, due in all probability to the pressure of the instrument on the cricoid.

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ARTERIO-VENOUS ANASTOMOSIS IN THE UPPER EXTREMITIES FOR IMPEDING GANGRENE.*

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A very thorough study of the literature of the arterio-venous anastomosis shows that the operation has been performed in the upper extremity six times, on five different individuals by four different operators.

In this group of cases there was one fatality, reported by Bernheim, which fatal issue cannot be attributed to the operation directly, but rather to the general condition of the patient, which was very bad before the operation was undertaken. In this case (embolism of the brachial artery), a thrombus was found upon autopsy at the site of the anastomosis, in accordance with the usual history of similar cases.

Considering Bernheim's case as doubtful, it may be stated that five of the six operations were successful, giving an operative percentage of success of eighty-five per cent.

Such results stand out in striking contrast with those of the older methods of making an incision in the artery over the thrombus and removing the clot.

In 1912, Gash reviewed the literature of this older procedure and found but nine cases of axillary thrombosis operated on. In his review, in which his own case is reported, Gash states that the operation appears to have been generally unsuccessful, due to the reformation of the clots. In most instances amputation of the limb became necessary.

From a comparison of results, it now seems evident that simple arteriotomy is insufficient and unreliable as a curative measure and that anastomosis should be attempted in all cases of impeding gangrene, due to the obstruction of the artery. This is sufficiently emphasized in the literature which I have reviewed, showing permanent cure in eighty-five per cent of cases, where the blood current has been reversed, and almost total failure in simple thrombotomy.

Before presenting the details of my own case, which appears to be the seventh to be reported, it seems worth while to review briefly the history and development of the procedure of arterio-venous anastomosis.

Experimental blood-vessel anastomosis is not new. As early as 1881 Francois Frank performed anastomosis between the femoral artery and vein and got pulsation in his veins. In 1892 Gignole secured successful end-to-end anastomosis on the dog, and similar results were attained by Raymond, Pettit and others.

The first attempt at arterio-venous anastomosis in man was made by Santrustejin, a Spanish surgeon, in 1902. This pioneer did a double end-to-end anastomosis of the femoral vessels in Scarpa's triangle for the relief of extending gangrene in a man of 52. The immediate results seemed satisfactory; but amputation was found necessary on the sixth day and the patient died.

During the same year, 1902, Carrel perfected his technique by establishing the principles that

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successful suturing depends upon the approximation of intima to intima with a minimum amount of injury. The following year Carrel and Bernard reported their first operation on dogs, which, incidentally, resulted fatally.

Horsley has very recently improved upon Carrel's technique so that no sutures enter the lumen of vessel. A special suture staff is required.

In January, 1912, Halsted and Vaughn contributed to the literature a detailed report of forty-two cases of operation on the femoral vessels, eleven of these being for threatened and thirty-one for actual gangrene due to various conditions of the artery.

These authors summarized the signs of the successful reversal of current as the following, given in order of their frequency: First, increased warmth; second, improved color; third, relief from pain; fourth, improved sensation; fifth, filling of the superficial veins; sixth, return of the parts affected to normal; seventh, pulsation in the veins below the anastomosis.

Personally, it seems to me that pulsation in the vein below the site of anastomosis should be of first importance. It is my opinion that no case should be considered successful unless there is a continued pulsation after the operation.

Bernheim, of Johns Hopkins University, has been a strong champion for the operation, and his brilliant clinical work has quite overcome the adverse opinions previously voiced by many clinicians. Bernheim regards the successful employment of the procedure as largely a question of technique and careful surgery, and, in his last report, dated 1913, he supports this opinion by the recital of nine instances in which he has successfully reversed the current without fatality.

Experience has demonstrated beyond discussion that the circulation in the large vein of the extremity may be reversed and that the higher pressure of the arterial current can overcome the resistance offered by the valves of the veins.

Summarizing the literature at the present time, about eighty cases have been reported with successful operative results and permanent relief through arterio-venous anastomosis. However, only six of these operations were on the vessels of the upper extremity; the case I am about to report being the seventh in this group.

With seventy-three successful operations on the lower extremity, there is every reason to assume that like success will attend the employment of the procedure on the upper extremity, since the valves in the veins of the upper extremity are not so well developed. Two factors, however, have reduced the list of operations on the upper; first, the fact that indications for interference in the lower extremity are so much more frequent; second, the reluctance of operators to undertake the anastomosis in the upper extremity on account of the smaller calibre of the vessels involved.

That the operation on the upper extremity is not only practicable, but conservative, is indicated in the following brief review of the six cases before us for consideration.

1. On July 5, 1907, Doberaeur reported a successful operation in which he found embolus of the axillary artery which threatened gangrene of the entire arm. On two previous occasions this patient had been subjected to operation with the old procedure of incision of the artery and the removal of the clot, and a third clot had formed and gangrene continued to progress two days after the last arteriotomy. Doberaeur determined upon anastomosis of the artery and vein, shortly after which operation he found active pulsation in the vein below the point of anastomosis.

2. In 1912 Wieting employed the operation on a male patient, twenty-four years of age, who presented the usual symptoms of impending gangrene. The fingers, hand and forearm were cold and the fourth and fifth fingers were black at their tips. Wieting anastomosed the central peripheral artery with the brachial vein. The artery was clamped and the vein ligated high in the axilla. He employed a lateral union. The patient recovered fully, with hand and arm in excellent condition, although it was necessary to amputate the fourth and fifth fingers on the fifth day.

3. This case, also reported by Wieting, was that of a debilitated woman of sixty, presenting severe bronchitis and weak heart. Although embolus existed in the axillary artery with threatened gangrene, amputation was contraindicated on account of the debility of the individual. Anastomosis was performed as in the previous case. The patient died the second day after the operation and, upon autopsy, a freshly formed thrombus was found at the site of the operation.

4. In this case, reported by Heymann, there was the typical circulatory disturbance of Raynaud's disease. At the crest of the hand and the forearm there was a patch of dry gangrene the size of a silver dollar, extending to the last two phalanges. End-to-end anastomosis was accomplished at the central end of the axillary artery with the terminal end of the corresponding vein. There was complete reversal

of the circulation and disappearance of all evidence of disturbance.

5. This case, reported by Bernheim, is that of a patient aged fifty-two, the tips of whose fingers had been previously amputated for gangrene. Later the gangrene advanced, but was permanently checked by end-to-end anastomosis at the lower end of the axillary artery.

6. In this case Bernheim reports the successful reversal of the circulation in all four extremities of the same individual. The patient was a man of twenty-six and presented gangrene of the little finger of the left hand. Lateral anastomosis was performed with the following technique: An incision was made in the vein and artery at a right angle to the direction of the blood stream. The vessels were united with a single continuous thread and, later, the vein was tied off above the site. Following the operation, the valves seemed to be quite close together. There was no rush of arterial blood. After eight months, pulse formed in both veins.

The seventh is that of the author's, the history of which I desire to present at this time.—Case referred by Dr. A. L. Stuttle.

The patient presents a most interesting history. He is a native of Illinois; aged fifty-two; weight 154 pounds. He used alcohol in excess until six years ago. His general health has always been excellent except that, at the age of seven, he developed an anterior poliomyelitis, which completely destroyed the use of his right leg. Since that time he has used a crutch, consisting of a broom stick with a cross bar at the top.

Since he used no handle, by which he could take the pressure from the axilla, the entire weight of the body was borne by the axilla, the crutch always held to his side by pressure between the body and the arm. The right arm and forearm, thus being free, bore none of the weight of the body and were used in his ordinary occupations.

After forty-five years of this constant pressure, the patient, on the tenth of November, 1913, suddenly developed a severe pain in the right hand, later ascending to the elbow and then to the axilla.

When I first saw the patient no radial pulse was found and, upon complete examination, there was observed no pulsation whatever in the entire extremity except over the deltoid. The pain increased daily and the entire arm became cold and cyanotic. The dorsal surface of the hand showed an area the size of a silver dollar, between the thumb and index finger, which was absolutely gangrenous. The thumb and adjoining two fingers were black. The condition was obviously rapidly progressing and the choice of procedure lay definitely between amputation at the shoulder and arterio-venous anastomosis. The latter was chosen.

The axillary artery was dissected out as high up as the acromial thoracic and was found to be thickened, very hard, the size of the index finger and entirely free from pulsation. Every branch of the artery below the point of anastomosis was thrombosed and completely occluded.

Evidently we were dealing with a traumatic ascending thrombosis, since the same condition of the artery existed to within two inches of the elbow.

The artery and vein were dissected out and divided two inches below the acromial branch. A solid, organized blood clot was removed by stripping the artery. It was necessary to use this two inches of thrombotic artery for my anastomosis, otherwise it would have been necessary to go back to subclavian.

The axillary vein above this point was severed and an end-to-end anastomosis performed by invaginating the artery into the vein. This was found to be extremely difficult on account of the unusual size of the artery and the small lumen of the collapsed vein.

Four mattress sutures of silk were inserted through the coat of the artery and passed into the lumen of the vein and out again, about one-half inch from its end. The artery was in this way pulled into the vein. The cut edge of the vein was secured to the outer coat of the artery by fine silk Lembert sutures. The invagination accomplished, the temporary ligations of gauze packing about the vessels were removed. The vein beyow the point of anastomosis filled rapidly and pulsation was noted in the superficial veins. The color of the arm and hand immediately improved and the skin became warm. The gangrenous thumb and fingers were amputated at this time.

Following the operation the patient had no pain and, at present, five months later, pulsation is quite evident in the superficial veins and the result is ideal. Upon several occasions I have amputated the limb for similar conditions and feel that had anastomosis been performed the arm would have been saved.

I want especially to emphasize in this paper, the possibility of conservative treatment when the indication presents. I believe that the possibility for success in the future in selected cases is most encouraging.

Personally, in case another condition of this character is seen in my practice, I am going to be equipped with the Lespinasse absorbable magnesium rings. These present the most simple method for an anastomosis. I feel certain that if you will witness Lespinasse do an anastomosis you will decide as I have. His method is quick, requires less skill, suturing not so fine, and at no time do the sutures come in contact with the blood stream. It is safe and certain. Perroncito, in an article in La Speremental, September, 1913, suggested a ring differing from the Lespinasse ring in that the rim is nearly all hollow instead of having the small holes. I do not see an advantage in the newer ring.

SUMMARY.

1. Arterio-venous anastomosis should be done more often.

2. The operation is successful in eighty-five per cent of cases.

3. The operation is not more severe than amputation.

4. There is nothing to be lost by attempting anastomosis, since there is no bar to later amputation in case of failure.

5. End-to-end anastomosis is a more satisfactory method to be chosen.

6. It seems that the results will be permanent, although the operation on the arm is still relatively new.

7. Anastomosis has completely displaced thrombotomy.

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THE PSYCHONEUROSES AND THEIR TREATMENT.*

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Steadman defines the term psychoneurosis as "one of a group of minor diseases of the mind which are not actually insanities." Dana further defines this group by saying that "the minor psychoses include all those disorders of the mind which are not insanities, in the strict meaning of the term and in which the patient practically is still a responsible person." He further says that "the distinction between the major and minor psychoses is not an absolute one nor even a scientific one and one type may be grafted upon another." Janet coined the general term, psychoneuroses, to include the formidable group, designated under the common term hysteria, the psychasthenic group, the epilepsies and the heterogeneous modifications of these types, many of which are abortive types of the major psychoses.

Sufficient has been said to define, in a general way, the types and classification of the disorders we are to consider. The problems before us, however, in their clinical significance, are of greater importance than is ordinarily believed by the average physician. In fact, they cannot be superficially considered because the facts brought out in the study of these cases resolve themselves into problems involving the greater clinical diagnostic considerations, treatment, from the medical or surgical viewpoint and the social problems involving the rights, duties, liberties, etc., of the patient, together with the ever growing importance of the more refined significance these rights, duties and liberties have upon society in general. We at once recognize the need and importance of Angell's saying "that every science is under obligation to analyze the phenomena with which it deals." Therefore, in order to understand the psychoneuroses in the broadest conception of the term we are under obligation to analyze the phenomena with which we have to deal. It is apparent at first sight and in accordance with the definition that we have to deal with phenomena essentially mental in their clinical manifestations. To analyze mental phenomena we call to our service that science which deals with the mind, psychology.

Psychology is that science which claims to formulate the body of ascertained truths about the constitution and mechanisms of the mind. It gives us insight into, and interpretation of, the facts of daily life. It analyzes the complicated mental states and mechanisms as shown in memory, association of ideas, volition and other faculties of the mind. It studies the emotions, which are the foundation for all practical life, for they help us to understand conduct. It contributes to the study of fundamental traits and instincts and leads to the interpretation of these native tendencies as their reactions are noted in intellectual life. In short, it studies all of these facts as they are projected into the larger field of social psychology with its problems in cultural progress as shown in religion, art, morals, laws, and other socializing agencies which unify social progress.

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Doubtless you think I have presented a very formidable array of phenomena for analysis as essential to the clinical study of the psychoneuroses. True, I have, but let me remind you, life is, both in health and disease, from the cradle to the grave, one round of reactions of mental origin, needing interpretation if we are to understand the individual. Again, as Munsterberg says, "from the nursery to the university, from the hospital to the court of justice, from the theatre to the church, from the parlor to the parliament, the new influence of psychology on the real daily life is felt in this country as in Europe, producing new hopes and new fears, new schemes and new responsibilities."

Well may we ask with Munsterberg, this question as we seek its answer in our work: "What becomes of the universe and what of the human race; what becomes of our duty and what of our freedom; what becomes of our friends and what of ourselves, if psychology is not only true, but the only truth and has to determine the values of our real life?"

The problems while many are both individual and social. Individual in that in our clinical service we deal with individuals and must study both in a genetic and general way all of the phenomena presented in the individual case. But, as we proceed into the realms of experience as delineated by the patient and the status of his mental mechanisms we find ourselves confronted with the fact that it is impossible for any one to begin life, much less sustain it, by separating himself from his fellows. The social bond is established by the very act which brought the individual into being; it is continued and rooted in the growth of self-consciousness; it is apprehended by the individual in his own personal self and involves the recognition of others and their interests, whatever his life may be. Upon this fact is based the very radical and fundamental character of some of his social emotions, sympathy, remorse, jealousy, mortification, etc. Likewise the retirement of self—the shutting in of his personality when he seeks to ignore through fear or selfish motives the rights of others and stirs up that great array of events which spring from self-consciousness gone astray. In other words, an individual to live a normal life with his fellows must himself be normal in his mental mechanisms. It is perversion of these mental processes in the individual which is responsible in part for that group of mental disorders we call the psychoneuroses.

The individual who is typed as a psychoneurotic is such because of the three fundamental factors which have moulded his personality, viz.: heredity, environment and education. It is through the combination of these agencies that he has been socially prepared to be labeled as a psychoneurotic. His individualism, which has led him into revolt and thus brought him to us as a patient, must be studied through the combined agencies of modern methods of diagnosis. The modern clinician is intensely practical and calls to his aid all of the modern sciences, which he focuses upon the patient, both analytically and synthetically, to help in unraveling the problems in diagnosis.

Modern neurological and mental diagnosis has shared in the triumphs of present day accuracy in diagnosis, this accuracy being the work of research workers, the men not afraid in experimental medicine and who encourage us to apply the knowledge thus gained to the relief of the afflictions of our patients. Courage is necessary. Gowers has said that "timidity is almost a greater hindrance to diagnosis than is ignorance." In order not to be hasty or rash or seeking too ardently the opportunity to put a label upon a case, to give it a name, let us in studying all mental phenomena remember what Gowers also said, "whenever you find yourself in the presence of a case that is not at once and completely familiar to you in all of its details, to forget for the time all of your types and all of your names." "Deal with the case as one that has never been seen before and work it out as a new problem to be investigated as such."

In the psychoneuroses we must not neglect the somatic symptoms—we must study the body because "the fate of the mind is bound up with the experiences of the body." When we consider the various structures comprised in the nervous system, their diversified functions, their alliance with and parts of the confederation of the body in which other symptoms are concerned, notably the internal secretions and other agencies which modern medicine shows have very varied reactions, it behooves us to be on our guard in the analysis of the phenomena with which we have to deal in the cases typed psychoneuroses.

Perhaps I have indulged too much in telling you of various factors concerned in the clinical evolution of the group of disorders we designate psychoneuroses. My object has been more of a warning than an attempt to be prolix. I want you to know that a patient becomes the victim of a psychoneurosis through more than one factor, and we must exhaust the three fundamental factors, viz.: heredity, environment and education, before we have arrived at a full recognition of fitness to be so designated. The border of insanity is not always well defined and it is not always ascertainable even in the hands of the experienced.

The psychoneuroses have been much in evidence in medical and popular magazine literature in recent years and especially so since the advent of the Freudian doctrines. There has been much misinformation freed for the superficial minds to gloat over and many faulty deductions made in the amateurish attempts to sound the depth of human experience. To the real student who is willing to take time to accumulate knowledge of the human mind, who is willing to adhere to tried facts and tested formularies, who is seeking the patient's good and not an excursion for variety's sake into the realms of repressed experiences, much can be done to relieve the distressed minds struggling with emotionalism and faulty associations of ideas, which, like Banquo's ghost, will not down.

The experienced clinician must first know the psychic material with which he has to deal. Hence, the necessity of the study of the individual with reference to his family tree, the stock from which he sprang and a proper interpretation of the data with reference to hereditary characters, i. e., whether the clinical observations indicate hereditary or acquired characters. In this day of eugenics we have a whole lot of misinformation regarding heredity in the human family. Until we know more of natural selection we cannot interpret aberrations in the human race nor fully grasp mental characters which can be and are more likely due to acquirements. We all know that individuals differ in their capacities for making various mental acquirements but these characters must depend to a considerable extent upon environment and education in their broadest conception.

It is not necessary that a psychoneurotic be born as such, but the chances are in the average case that he has such an inheritance. Many a child was born right who became wrong in later years because of faulty training through either bald dogma or no dogma at all. During the early years of life habits of mind are easily formed and may become almost as strong as instincts, especially when reinforced by the accompanying primary emotions of the instincts of which fear is the most formidable. True, the average nervous child is inadequate in his hereditary capital, his potential nervous endowment, but with proper environment, with truth told and made obvious as truth, the average nervous child will demonstrate that more depends on acquirements than on inborn characters in evolving a useful, happy life. Natural selection too will come to the aid of this child if it has been given an opportunity to live under wholesome hygienic conditions which may fortify it even against family disorders of the nervous system and more particularly in the accentuation of characters which mean race preservation.

The clinician, therefore, must study all of these varied parts of the factors, heredity and environment. The American Breeders' Association, Eugenic Section, is doing a great humanitarian work in training observers to study family trees and to interpret environment in the special study of specific characters, traits, etc., noted in individuals, victims of hereditary and environmental influences.

The third factor in the study of the patient is his educational acquirements. This is a broad subject, because I believe we must approach it from the standpoint of the genetic theory of education. It is a practical way, the only way, in fact, in which we can approach the patient in the world in which he lives and thinks; in which we can touch his experience and compare it with our own. We must consider childhood in the light of common experience of the race. The genetic view demands this and in so doing it is helpfully democratic. It stands for the interpretation of the common facts of every day life. It gives interpretation of ways of thinking, feeling and doing which are good common sense ways and which lead to the new humanitarianism. Education thus becomes the science of life, not mere school or book knowledge.

We follow this study of the individual usually

"from backward to before," because in the psychoneuroses it is the experiences of the past buried in the subconsciousness of the present, which are at the bottom of the mental disorder. You may believe me prolix in all that I have said, but believe this one truth that if our race fails, through becoming a neurotic, degenerate social mass, it will be because the forces of civilization have been allowed to oppress the youth of our race through faulty educational standards.

Physicians, you are factors and you must insist on conditions which will allow the youth to attain maximal maturity. We can say that childhood, if left to itself, tends to recapitulate the race. It is largely the traditions of the adult and the influence of environment and the ideals of the society into which the child is born which suppress, modify and obliterate his inheritance and obscure his recapitulatory steps.

We must, therefore, make good his environment, give him lofty traditions and ideals and work for the deepened feelings, new interests and wider outlook upon life. We have our opportunity to overcome native weakness, native inadequacies from which originate the psychoneuroses. The psychoneuroses cannot occur where native forces, native nervous capitalization are adequate to meet all demands. Nutrition is, therefore, a necessary need to prevent and overcome the fatigue which is the basis of all the psychoneuroses. Weir Mitchell taught this years ago and up to the time of his death. Janet has reiterated it in his teachings. Dejerine believes in it and Dercum so fully believes it that he has coined the term "fatigue neuroses" to include a major portion of the psychoneuroses. The Freudian school regard fatigue as a factor but only secondary to the psychogenic factors. I have no reason to change my views expressed some years ago and based upon a rather extended bedside experience that neurasthenia is an acquired condition, an inadequacy of physical origin, and that the mental picture is that due to weakness, exhaustion and irritability. The fatigue is complicated, and as Weir Mitchell expresses it, is dependent upon "nutritive disorder" from which may result endless invalidism. I am not ready to accept the teaching of DuBois and include it under psychogenetic disorders. True it is that we may have a neurasthenia of psychic origin, but only as a rare sequence.

The true psychoneuroses are the hysterias, the psychasthenias and the very varied weaknesses shown in the inadequate individuals when confronted by experiences greater than they can bear. We must remember that the psychoneurotic individual is one whose reactions are out of proportion to the stimulus applied. Consequently, we find such an individual responding to fears, functional irregularities, especially those within the scope of various mental representations and the very varied disturbances of psychic life more or less dependent upon synthetic conditions such as worry, emotionalism, whether of traumatic origin or a native exaggerated mental state, and an intense native or acquired suggestibility added to a peculiar mental status which lacks coherency, is exceedingly passive and more or less automatic. The range of reactions is great and is as varied as the qualities of personality found in the respective patients. This is the reason for psychoanalysis to determine the quantity and quality of the stuff from which originate the reactions which impair the peace of mind or usefulness and serviceability of the individual.

In the treatment of the psychoneuroses we must arrange our points of attack with reference to the problems presented in our forecast of the patient's dilemma. First and foremost in our therapeutics we must study the characteristics of the patient; note the home environment; the larger and extended social environment with its varied incidents; note the history of the experiences of all kinds, especially those which have touched the emotional life and which may require a word association test to give a clue to these deep subconscious memories of experiences of life. Then, again, we must note the physical ailments both local and general and use every means in physical diagnosis to determine the true picture of the case with all of its physical problems. Then, seek for underlying moral causes, which are the greatest factors in bringing about the emotional perturbations in the psychoneurotic individuals. Tact, good common sense, courtesy, kindness and the real spirit of service are necessary qualities in the physician's make-up if he will attempt to solve these riddles of personality. Here is where the psychologically trained physician will find himself useful and serve well his patients whose troubles have been burdens hard for them to carry. Resolute will, coupled

with kindness, will lead the physician to many a victory.

To organize, to meet the fatigue with its exhaustion is the part which demands consideration from the start. Tentative means will not suffice, and it is folly to resort to them. Rest, isolation, seclusion and the necessary adjuvants of systematic feeding, massage, hydrotheraphy, etc., as grouped and practiced under the name of the *Rest Treatment* of *Weir Mitchell* has been my reliance for many years. I have not changed my views or my practice regarding the value of systematized rest. With it, we can practice any form of psychotherapy and even psychoanalysis with far more promising results than by the perfunctory methods of office practice. Why? Because we control the patient; the environment and all of the agencies which contribute to the welfare of the patient. My case records of several hundreds sustain the service it has rendered in the whole range of psychoneuroses where rest was indicated and where the ordinary plan of outdoor life, exercise, tonics and change of scene has failed. It is then a resource in my own practice in which I have confidence, and with Weir Mitchell, I can say the use of it has "become alike courageous and habitual."

I have no doubt of the value of psychonalysis in the psychoneuroses, but I have not yet been convinced that in it we have the panacea which will meet all of the demands of these disorders. No, I am waiting to be convinced, but in the meantime, I find solace, confidence in results and compensation for efforts put forth in the treatment of the psychoneuroses with both physical and psychic (psychotheraphy) methods of treatment. The end at least in my judgment justifies the means.

DISCUSSION.

Dr. John Franklin Page, Eureka: I desire to call attention to the importance of this subject to the general practitioner. I think the profession at large is going to the extreme in surgery and in bacteriology and neglecting this most important branch. I heard Wm. Mayo say at one of his clinics that the treatment of nervous diseases was far behind the other departments of medicine and surgery. The field which Dr. Norbury takes up in his paper is most important to every general practitioner, and the most neglected. I am glad that I was here today to listen to this paper, and think we miss a very great opportunity if we do not give attention to this subject.

THE PRESENT STATUS OF THE TREATMENT OF PULMONARY TUBERCULOSIS.*

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The crusade against tuberculosis in the middle west was inaugurated by this society just ten years ago. The purpose of this paper is to detail so far as time will permit what has been accomplished during this period. In order to appreciate what has been done we should take into account conditions as they existed at that time. First of all, we had to encounter the inertia of the public and the profession which grew out of the hopeless apathy which had hitherto characterized our attitude toward this disease. Also the traditions, prejudices and misconceptions as to the nature of the disease and methods of treatment. If it shall seem that we have not made much progress, the explanation is that we have spent most of our time in unlearning what we had previously accepted in order to get onto a rational basis.

We have made some progress in arousing an apathetic public, partially overcome traditional pessimism as to the curability of the disease, demonstrated that climate is not an essential factor, re-established tuberculin as a therapeutic agent, and compelled the acceptance of the principles of the hygienic-dietetic treatment as the only rational and effective method of cure.

We have, however, thus far failed to impress either the profession or the public with the fact that while the agencies used are familiar, the methods are not simple and the application is not easy. In practical experience the general practitioner has found that he was not curing his tuberculous patients by the newer methods from which he was expecting so much. He has also found that patients sent to sanatoria have in many instances not been permanently cured, hence, there is just now a tendency to lapse into former skepticism as to the curability of this disease. The tendency of the human mind is to extremes. This has been demonstrated over and over again in the history of medicine. No remedy or method of treatment, however meritorious, has ever been accepted at its proper value when first

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introduced. Modern methods of treatment of tuberculosis have proven no exception to the rule. Before we can make any substantial progress, we must learn what can and cannot be accomplished by present methods. The public, and to a large extent the profession, have exaggerated opinions as to the curability of tuberculosis, or more correctly stated, not its curability, but the conditions under which it can be cured. First of all, we must appreciate the fact that tuberculosis is a chronic disease; that while it may be cured at any stage of the disease, it is only curable with a reasonable degree of certainty in the incipient stage; that while the agencies used are familiar, their application is always difficult and that it is never quickly cured. The failure to recognize these essential conditions will inevitably result in discrediting the treatment unless efforts are made to change existing opinions and conditions. I cannot better illustrate the obstacles with which we are contending than by giving my own experience in the institutional care of 1,500 cases, covering a period of ten years. Of this number there were classified on admission 10 per cent incipient; 60 per cent advanced, and 30 per cent far advanced. Of this number 372 remained 30 days or less. It would be needless to state that this number received but little or no benefit, were it not for the fact that a large majority were advised that this was all that was necessary. The average length of stay of all patients admitted was less than half that required for the successful treatment of even incipient cases. My experience has not been peculiar and may be accepted as an index of conditions generally throughout the country, more particularly in the middle west. Unfortunately the merits of the treatment are judged by the results, favorable or otherwise, of cases treated under these conditions. In other words, the sanatorium treatment of tuberculosis has been subjected to a test which it cannot stand, and if conditions are not changed, or its merits judged by a different standard, it must inevitably sooner or later be discredited.

For a proper application of the curative possibilities of tuberculosis, a knowledge of the pathology of the disease and the manner in which it is arrested, is essential. If the pathologic conditions associated with various clinical manifestations were more generally known I feel sure that we would hear less frequently of patients being discharged as "cured" and fewer expressions of disappointment when patients relapse after being seemingly restored to their normal health. In the first place we should bear in mind that the sanatorium treatment is not a specific cure for tuberculosis, in the same way that salicylates are specific for acute rheumatism or antitoxin for diphtheria. We have, in fact, progressed no further than the position summed up years ago by Laennec in his statement that "The cure of tuberculosis is possible to nature. It is certainly not as yet to medicine." The rationale of treatment consists in putting the consumptive in a position to allow of nature doing her best for him, a remedy, which simple as it sounds, has required a long time to develop. The question then is not so much how far can the physician cure tuberculosis, but to what extent under favorable conditions, is the disease curable by nature. Pathologic research teaches us that to increase phagocytic action is the aim of sanatorium treatment.

The efficiency of treatment depends upon the thoroughness with which it is carried out and the perfection of hygienic conditions. This, and the necessity for absolute control of the patient, are the reasons for the existence of sanatoria. Unfortunately the narrow-minded assumption that open-air treatment is all the sanatorium provides, has led to numerous well-meant but fallacious ideas, that open windows in the bedroom, or a shelter in the back yard, will do all that a sanatorium can do in the treatment of tuberculosis. A sanatorium is not only a place where the patient is given a maximum of fresh air, but it is also a place where a patient suffering from this disease is treated scientifically according to the variations of his disease under the guidance of medical experts and where he is fed, clothed, exercised, and rested, according to indications, properly and sufficiently, in order to restore his inevitably damaged nutrition and circulation. The above are the essentials of treatment and simple and inexpensive though they may appear, it is extremely difficult to apply them. The return to nature is very difficult and irksome. The life is rigorous and monotonous and lacks the distractions to which the patient has been accustomed. It denies coddling, which long tradition has instilled into the minds of patients as being of prime importance in the treatment of any

disease. It is because of this that most of the schemes put forward for home treatment of consumptives are of little avail. It requires a patient of exceptionally strong will, who is peculiarly impressed with the necessity of careful routine to adopt sanatorium life thoroughly, even under strict supervision in a scientifically regulated institution. It is almost impossible, except in a few quite exceptional cases, that this treatment can be commenced in the home of the patient, surrounded by sympathetic friends, imbued with all the traditions concerning invalids, and away for the greater part of the time from the advice and direction of his physician. It is difficult at this point and usually impossible to accept a routine which is hard and irksome. The tuberculous patient distorts the true relation of things and if left to himself frequently acts disastrously from this distorted point of view. His moral and mental condition requires a vast deal of study and observation, which is only possible when he is immediately and constantly under his physician's eye.

A consumptive, given up to the care of those about him, is at the mercy of anything that may happen. In spite of frequent visits of his physician, he will have to contend, not only with his own peculiar weakness, which will lead him to commit with the best of intentions the gravest faults, but he must also contend with well-meant, but fallacious advice, of relatives and friends, who though well meaning, are usually his worst enemy. It is emphatically the case, as Detweiler says, that "the individual *in toto* has to be treated and the moral education is quite as important as the bodily treatment. The consumptive is in a peculiar mental condition which renders constant supervision and inspiration necessary. He lacks perseverance and power to concentrate the mind and will upon a definite object. In brief a typical case of phthisis embraces little less than the whole field of pathology."

In other words, the patient is the problem rather than his disease. It is not enough to tell the tuberculous patient what to accept, but he must be placed under an environment which makes this not only possible but easy of accomplishment, hence sanatoria for the treatment of tuberculosis, if for no other reason, are necessary to protect the patient from his own folly and that of his friends. Whatever of success may be achieved in the future by the home treatment must be as a result of the education which will come through the multiplication of sanatoria. Given a population fully alive to the value of the return to nature implied in sanatorium treatment and carried out in such institutions; given a patient who has had a few months training in a properly organized institution in which the various factors of treatment have been carefully instilled into his mind; given a medical profession more completely conversant with the symptoms and treatment of consumption than at present—then the question of home treatment assumes a very important position.

Aside from the failure to secure an early diagnosis the greatest obstacle to the successful treatment of tuberculosis is in the attempt to carry out the treatment in the home. This delusion is costing the lives of thousands of patients who would otherwise be curable. Home treatment for the untrained patient is the road to disaster, but after the routine has been taught and the patient interested in its importance and encouraged by the results in a properly equipped and organized institution, there is perhaps some prospect of continuing the treatment with success in the home, after the discharge. The sanatorium is an education, but it is far more than that. It is not only a place where patients can be educated as to how to get well, but a place where they are treated until well, and educated how to keep well. This is an important distinction and one that is not usually made. Sanatorium treatment is the only treatment which can claim that it has any considerable success in dealing with consumptives. Such other treatments as are at present in vogue, and which claim to have any value, are simply modifications of, or adjuncts to, sanatorium treatment and at best are poor substitutes.

The argument for home treatment is based on the assumption that because the agencies are so familiar and easily obtained almost anywhere, that sanatorium treatment is not necessary. It is assumed that the patient has a realizing sense of his danger, and intelligence in carrying out directions, that he will have the co-operation of his friends, and the guidance of his physician, who is familiar with the protean character of the disease, none of which assumptions are true, hence failure is the almost inevitable result. Sanatoria for the treatment of tuberculosis are a necessity for sub-

stantially the same reasons that the hospital is for operative surgery. Surgeons do operate in the home when they have no other alternative, but never when they can avail themselves of the advantages of a modern hospital. For the same reason provision should be made for the care of all cases of tuberculosis and until this is done we will make no progress in our fight against this terrible scourge. It is not recognized except by those who have had large experience that the patient and his friends are more of a problem than his disease and even the sanatorium cannot overcome all the frailties of human nature. It simply succeeds more or less perfectly in accomplishing what is almost, if not quite, impossible in the home. When this lesson is learned, as it must be sooner or later, we will have made the most important advance possible under existing conditions.

There is no class of patients for whom so much can be done and who are receiving more bad advice and worse treatment than tuberculous invalids. There is too much self-complacent irresponsibility in the medical profession in relation to this subject. Just so long as we continue to treat this disease by obsolete methods, or fail to direct our energies in bringing order out of existing chaos, we will be remiss in our duty and sooner or later the public will bring us to an account. While it is true that it is the business of the public to provide the facilities for carrying out the treatment properly, it is equally the duty of the profession to arouse and educate the public to its duty, instead of drifting as we are at present. This state is in need of sanatorium accommodations for at least six thousand patients. We have provision for less than three hundred. This condition of things will continue just so long as the medical profession permits it, and no longer.

Tuberculosis is curable. While this is true, not more than one in twenty is cured. Thousands of patients are receiving no scientific treatment whatever, and of those who are, it is applied so late or in such an indifferent manner, that the results are less than one-half of the possibilities. This is not intended as a criticism but simply a statement of fact. The public is beginning to ask, why, if curable, is it not cured? The medical profession must make the answer. Our profession is only partially responsible for existing conditions, but the public does not know this, and will hold us responsible until we clear up the situation. This they have a right to expect. While it is true that there are many angles to the tuberculosis problem which must be solved by other agencies, the treatment of this disease is in our hands.

In the past we failed to cure tuberculosis because we did not know how. At present, we know how, but fail because the means at our command are not properly applied. We are not so much in need of more knowledge of how to treat tuberculosis, as we are of a better application of the knowledge we already possess.

TWO HUNDRED CASES OF GONORRHEAL URETHRITIS WITHOUT A COMPLICATION.*

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In all probability, by way of introduction, I should make a twofold apology for the presentation of this paper; first, because of the fact that the subject of gonorrhea in its various phases has been worn threadbare in the literature, and, second, because the prevalence of the disease would implicate that two hundred cases represent too small a number from which to draw definite conclusions. In defence of my first invited criticism, I make bold to state that two hundred cases without a single complication give data enough for consideration, and though I should hesitate to present such a number to a body of urologists, I feel that such a gathering as this, of men in the general practice of medicine, will consider the number of sufficient weight to grant me a willing hearing. In further justification, I might add that it has been my experience that too little importance has been placed upon the urethritis of gonorrhea in its sequelae, not as regards the individual who harbors the disease, in uncomplicated cases, but the communication of the infection to the female—especially in wedlock. The prognosis as to permanency of cure is of far more importance than the actual treatment of the case in the acute stage. This resolves itself into a

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humanitarian subject, which demands more of our thought, inasmuch as the welfare of our posterity and our wives is so dependent upon a better understanding of the length of the time that the gonorrheic is a source of danger to the female. We urologists today withhold our permission for matrimony for twelve months following the disappearance of every clinical manifestation of the disease. If the infection has traveled into the posterior urethra and prostate eighteen months should be the time limit before marriage is permitted. This may be slightly over-cautious, but it is far better this way than running the chance of conveying the disease to mother or child, or both.

By uncomplicated gonorrhea is meant the limitation of the infection to the anterior urethra, without any involvement of the deeper structures of the penis, such as cavernitis, spongeitis, phymosis, or paraphymosis. That it is impossible in certain cases to confine the disease to the anterior urethra is well recognized. Fortunately, these instances are very uncommon, and are due to a high degree of virulence of the organism or a lowered resistance of the host. There can be no doubt, however, that the complications incident to the Neisserian infection, especially the extension to the posterior urethra, are in a large per cent due to maltreatment or delayed treatment.

All the cases herein reported were seen within seventy-two hours after a discharge was first noted. The sooner the treatment can be begun, the better the outlook for an early clinical cure. Records of most urologists show that sixty per cent of the acute anterior infections, if gotten within the first twenty-four hours following the beginning of the discharge, can be cured in five to ten days. In this series of 200, 122 cases began treatment within the first twenty-four hours, of which 72 cases showed no discharge after ten days, and the urine remained clear and free from shreds. The remaining 128 cases were clinically cured in from three to twelve weeks. In not a single case were there any subjective symptoms other than slight irritation incident to the acid urine, which was promptly relieved with bicarbonate of soda.

In instituting a systematic routine coincident with the local measures, great stress should be laid upon the general hygiene. As much rest as possible should be advised, the ideal condition being confinement in bed, which, of course, is impractical in the majority of cases. Avoidance of strenuous physical exertion should be insisted upon. Naturally, sexual excitement should be avoided. This is seemingly superfluous advice, but not infrequently will be found of value. The bowels should be well regulated. An accumulation of feces in the rectum invites extension of the organisms invading the anterior urethra.

The diet does not influence an anterior infection, but alcohol in any form should be strongly interdicted. From fifteen to twenty glasses of water in the twenty-four hours should be taken, the rationale of which is self-evident.

Most urologists today agree that the time-honored custom of prescribing the various balsams, copaibas and sandalwood oil is obsolete, No good is accomplished, and often severe gastritis and renal irritation are produced.

Gonorrheal urethritis is a local disease, and the treatment that is most effectual is directed toward the urethra. Personally, I feel that instillations have a distinct advantage over irrigations, and I am convinced that in the hands of the general practitioner the latter procedure is a big factor in carrying the infection into the posterior urethra. In hyperacute virulent infections it is unwise to begin medication of the urethra until the swelling and edema have subsided. This is best accomplished by soaking the penis more or less continuously in very hot water. This procedure is of value just before each instillation, as it promotes absorption and penetration of whatever medicament is used.

The ideal drug for combatting the Neisserian organism would be one that is strongly germicidal, highly penetrating and non-irritating. Albargin, a German albuminoid salt of silver, comes nearer filling this requirement than any other. Its superior penetrating and germicidal properties have been frequently demonstated experimentally, the most recent work being that of Clark and Wylie, of New York.

In the method that I employ the drug is in the form of a semi-solid or ointment, which melts at body temperature. The base of the preparation is gelatin and tragacanth, and a small amount of glycerin for its hygroscopic influence. The preparation as put up by my druggists, Dinet and Delfosse, of Chicago, is in glass tubes, the

tip of which is conical, thus combining urethral syringe and medicament.

Ointment applications to the urethal mucous membrane are by no means original with the author. Young, of Baltimore, employed it many years ago in chronic inflammations of the urethra. Karo, of Berlin, is, I believe, the originator of the tube treatment of acute gonorrheal urethritis. It was at his clinic that I became convinced of the efficiency of this method. Instead of the original Karo tube, made of a collapsible material, glass has been substituted. The reason for this change was because of the metal occasionally becoming corroded by the silver.

This method of urethral medication has the advantages of cleanliness and ease of application, inasmuch as syringe and medicament are combined. In addition, and of greatest importance, a quantity of this semi-solid material will cling

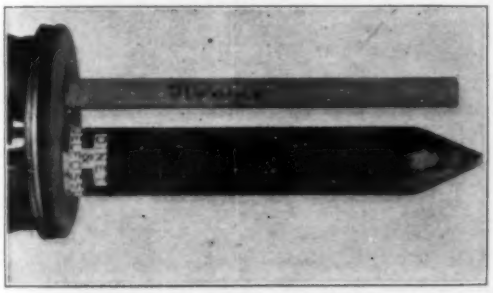

Fig. 1. Syringe Containing Medicine.

to the mucous membrane, while a liquid will all be expelled as soon as the meatus is released. This is a distinct advantage, since it is quite natural that a greater efficiency from medication is to be attained the longer the medicament bathes the inflamed tissue.

To summarize:

1. Acute gonorrheal urethritis in ninety-eight per cent of the cases, if gotten early, can be confined to the anterior urethra.

2. Sixty per cent of the cases can be cured in five to ten days, if treatment is begun within twenty-four hours after the discharge first appears.

3. Albargin in ointment form is most efficient in combatting the urethritis of gonorrhea.

4. Gonorrheics who have had anterior urethritis only are a source of danger for twelve months after every clinical evidence of the infection has disappeaed.

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DISCUSSION.

Dr. A. F. Wilhelmy, Decatur: These cases have been the bane of our lives. I have always believed that the less you did with these cases the first twenty-four to thirty-six hours, or even forty-eight hours, the better they got along; during, at least, the most acute stage, they should not be disturbed.

Dr. H. C. Fairbrother, E. St. Louis: This paper is interesting, and this new mode of treatment interesting, on account of the wide-spread prevalence and disastrous effects of this disease. The gonococcus, and its neighbor, the spirochaete, are the great depopulators of the human race and the destroyers of much human happiness. We hear of a wedding and a few months afterwards we hear of an operation for "appendicitis." The doctor only knows what the matter is. He never tells that it was a pus tube, but a life of sterility tells the sad story.

Now, any remedy that proposes to shorten the time and render more certain the results will be hailed with delight by the profession. I have long been inclined to instillation over irrigation, although admitting the fact that irrigation is the now popular method of treatment. If this instrument and this medication prove what it promises to do it will be a great boon to humanity.

Dr. Irvin S. Koll, closing: I will try to answer just a few questions that were put by the gentlemen who were kind enough to discuss the paper.

In regard to albargin and the other silver salts that have been used, experimentally the greatest efficiency has been proven to be in albargin. Now, we must remember, however, that there is a wide range of difference between our results in the test tube and our results in the infected individual, and yet we have to make our clinical deductions from what we diseover in the laboratory, within, of course, reasonable limitations. Argyrol is a drug that has been proven to have no effects whatever in strengths less than twenty to twenty-five per cent., as far as its germicidal property upon the gonococcus is concerned. A twenty to twenty-five per cent. solution of argyrol has a very high specific gravity and also makes a very expensive preparation to use, aside from the disagreeable staining properties on the clothes. Albargin has been shown in strengths of from one-half to two per cent.—the tubes are in one per cent.—to have the greatest efficiency as far as penetration of the tissues; and this is an all-important point as regards our entire medication of the patient for gonorrhea. You must take into consideration that the gonococcus rapidly invades the submucous tissues, gets into the millions of Littré glands with their ducts going down deep into the submucous connective tissues. If the bacteria were all on the surface, it would be the simplest matter in the world to eradicate the disease, because the

gononoccus outside of the body is more easily killed than most any of our pathogenic organisms. Ordinary boric acid will readily kill them; sunlight, drying them in the air, will dispose of them; but when the diplococcus burrows down into the submucous tissue and into the glands of Littré, and you cannot get at it, then you must have a drug that has a high penetrative quality, and though albargin is far from the ideal or what we would have it, it is the most efficient drug that we have at our disposal. In the tubes it is one per cent., with about one-half of one per cent. glycerine to increase its penetrating power.

In regard to the so-called "bane of our existence," the individual who goes on and on and on, with a discharge that stops and he is all right, then he drinks a glass of beer and it starts again, a little sexual excitement and it starts up again: Don't forget that every urethral discharge is not gonorrheal. There is only one way, however, to tell, and that is the microscope, and then sometimes we may have difficulty in differentiating because there are other organisms that morphologically resemble the gonococcus. I speak of the diplococcus catarrhalis, first described in the urethra by Ayres, of New York. That is a Gram-negative intracellular organism, and very frequently you will have difficulty in differentiating that from the gonococcus. It can only be done absolutely by means of the fermentation of sugars, which, of course, is impracticable for office use.

I have the patient use these injections according to the acuteness of the disease. In very acute conditions, for the first day or two, if there is a lot of edema, the less there is done the better for the patient. In the subacute stages I have been having the preparation used three to four times a day.

HOBBIES.*

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Springfield, Ill.

It is not my intention to praise the hard-worked, patient secretary, nor to attempt to right the supposed ills of his office, but I must mention my appreciation of the courtesy of the program committee in simply asking for a paper on a subject of my choice without regard to what really should be said in accordance with precedent firmly established many years. In choosing this subject it is my intention to use the word advisedly for, in some instances, a shorter and uglier word would perhaps be more fitting. I am re-telling an old story, but one which is familiar to all, as it will be to our children, yet nevertheless more or less true and to some extent amusing.

The secretary of a county medical society is a fortunate person in that he has as much work to do and as many privileges as a second lieutenant or an army mule. He is well cared for, is a necessity, and a fine fellow in the full discharge of what is required of him. In fact, he does as he is told to do, regardless of conflicting emotions or his inclinations. Such is the graphic picture of what a secretary is commonly supposed to be. Nothing could be farther from the real truth, if that secretary has a "hobby."

A "hobby" has been defined as something you can ride with no difficulty once you get firmly seated, and what a pleasant outing any secretary may have if he possesses a pair of rose-colored glasses and makes use of them. No man in the society is so well situated to enjoy the privileges the constitution and by-laws afford him if he wishes to. It is more real pleasure to be the servant of the president of a county medical society than that afforded by a retainer fee for an expected confinement.

Did you ever sit, smoke and think of your society as a whole and begin an analysis of its individual members and their peculiarities?

If you never have the best part of your life is immediately before you. It is the best sedative for a nervous tension yet discovered and it is to be deplored that our neurasthenic patients are not eligible to the office.

You will find more nucleated views among men of brains than it has been your good fortune to note up to the time of your election. Your position is an enviable one and has indeed many compensations.

You will discover the man whose hobby is the dollar and who thinks more of it than he does of the gravy on his vest.

You will find, with little difficulty, the self-considered diagnostician, who will cleverly deduce from a luetic history and an angina pectoris that the patient has a syphilitic gumma of the bundle of His.

The katabolic gentleman who criticises your bulletin will give you much food for thought and you will be able to glory in your advantage to reply to him on paper at your leisure.

It will be a pleasure to you to listen to the "wail" of the man who wants to be president,

*Read at the secretaries' conference at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 19, 1914.

but can not, and who just to assert his untrammeled independence will stay away from the meetings altogether. His presence at a meeting will tickle your ego and make you think you are a hell of a fellow because you persuaded him to come.

You will be allowed to listen to the fellow who collects ninety-seven per cent of his business, without divulging his system, and he, being older than you, shows what may be possible for you to do some day. At least you will go home and tell your better half that the clouds are at last showing evidence of a silver lining and the note at bank will soon be a matter of history.

The man who collects five thousand the first year will tell you about it good naturedly and you will soon be feeling better than a spring colt. The practice of medicine, in his opinion, is a huge joke and only during the first ten days of the month will it occur to you that he is perhaps wrong.

You will think of the politician. Now he is really good stuff, if you only knew it, for the slate is ever and always in process of being completed and all you have to do to make your influence felt is to get into the band-wagon. I think I ought to pay a little more attention to this member of our society, as he's a real necessity, despite his persistent activity. Have you ever noticed a figure-head in the chair, who awaited the summons of his "boss" before deciding that the man who has the floor is out of order notwithstanding the ruling of Mr. Roberts? From your vantage point you are silently learning the fine points of the game for nothing, which is something you did not learn when one of the common horde.

The member who makes eighteen calls before noon, and at 8:00 P. M. has yet ten to make, confides in you, when you call to see him, that business is good but collections are only fair. However, they have been pretty good for the past week and that if this lick keeps up he probably will send you a check for his dues about the 15th.

The man who has just completed his one hundred and fiftieth laparotomy, without deducing any conclusions other than it is dead easy to be a Mayo, will make you feel good until you meet up with the man who has done a thousand, when you're quite content to be a pediatrician or an obstetrician and let the real surgeon do your heavy work.

You are introduced as our "efficient" secretary, whom every one in a dozen surrounding counties knows personally or by reputation and as one of the main factors in keeping the society alive. Occasionally you get to become known as our "perpetual" secretary on account of your willingness to do the work no other member cares to do.

Most certainly you are well paid by the pleasure it gives you to jot down the various excuses handed in temporarily in lieu of dues. This part of your duty teaches you more real inside information about human nature than all the dispensary work and "dead beat" patients you have had.

The man who says "The dues are not payable until April, are they?" you can put down as the one who considers you a good fellow and will never take you seriously, as no secretary ever should be taken, for that is part of his official sunshine.

The member who asks, after reading repeatedly in the Bulletin your appeal for money, "When are the dues in order, Doctor?" is the one whose vote you may count upon with certainty at the next election. He likes you and is sure you understand that his bank account is low and he feels you will not suspend him when the time comes.

Moreover, as a member of the program committee, you have the delightful privilege of turning your fire upon some member whose attitude has impressed you with the idea his "ego" needs pruning and you put him on just to show him what a "drawing card" he is among his fellow practitioners. The result will develop without any further effort upon your part and you are praised for your diligence in trying to make the meetings interesting.

The president consults you on parliamentary rulings and if you advise him incorrectly, he gets the blame and you can smile with the rest.

A thorn in the side of the committee on ethics is the man who is exceedingly fond of the press notices given him frequently in connection with some very common type of injury, but so far as the laity is allowed to know, the result was brilliant. This man meets you with the blasé air of "injured innocence" and tells you how often he

has requested the editor to refrain from mentioning his name, in spite of which a friendly feeling between them maintains the practice, while the younger and hard-pressed member will ask your opinion and tell you what he intends doing if this form of "charity" advertising is kept up. In this case you are, without any effort, the means of making both sides feel relieved after the explosion.

As an innocent bystander you ought to be able to enjoy very much the squabble between those who do contract practice and the "antis." This is a never ending source of amusement because no definite solution of the matter is ever reached. A meeting devoted to a discussion of this subject will be the one bright mark in your record of attendance, which end-result we, as secretaries, are all united upon.

As secretary you are supposed to know intimately every member upon your books, which gives you the privilege of suggesting to the president the membership of various committees, whereby you are enabled to increase the efficiency of your office, since it is a foregone conclusion that a young man who has never had an office will keenly appreciate any such favors and will do what he is asked. Of course your advice is sought constantly and your society will become more and more your "hobby."

Do you not find it very entertaining to read the excuses given by deliquent members in reply to your yearly letter of inquiry as to why they attended but ten or twenty per cent of the meetings during the year and do you not frequently learn a great deal? This part of your effort to increase the attendance is an interesting investment to say the least.

Imported talent for your programs comes in response to your written invitations and naturally you meet the train and arrange for the entertainment during his stay. You are thereby permitted to become an "innocent, gentle grafter" by being invited to take dinner with the host and his guests and who can deny that it pays to know men well established in our profession? The secretary is always included in such affairs as a matter of course.

You also establish your credit at the bank, which is taking care of the funds of the society, and what is more desirable than the good will of your banker? Through this advantage given you by virtue of your office you are permitted to renew your personal note as often as desired and in the sum total this item will loom up like ice-water the morning after the night before.

You are the one and only man at the meetings who is being compensated financially for being present and your fifty at the end of the year will erase all differences between friend wife and yourself for the many evenings spent at committee meetings. This of course if you are fortunate enough to be a Benedict.

It will cause you to smile to see the indifferent member, who is threatened with a malpractice suit, "scramble" to the meetings, pay his dues, and get acquainted with the high-brows in anticipation of the need of their favorable testimony. This "scramble" soon becomes a habit and he need no longer concern you in your letter of inquiry at the end of the year.

There is in all likelihood a man in your society who can not be induced to attend the meetings regularly regardless of the program presented, who will tell you that, in his opinion, the society is accomplishing nothing worth while; that the county supervisors' motto is retrenchment when doctors' bills are considered; that the fee bill is a monstrous myth; that the old practitioner is not at all circumspect in expressing his idea of a common case; that the practice of medicine is going to the dogs as rapidly as the progress of the Devil. That man has a latent talent, which you may not have discovered. All he wants is, not to be let alone, but to be given a place on the attendance committee and be recognized at his true worth. He has not a sluggish liver but is simply suffering from the chill of inattention. That man will become an interesting member once given a chance to enthuse.

A constant effort upon your part to make a readable pamphlet of your bulletin frequently leaves you minus what you really prefer to see printed therein, which state of affairs permits you to use the society members to practice upon in perfecting your vocabulary. It is no small accomplishment to be able to express yourself well on paper, which is naturally followed by the same power in extemporaneous speech. This your position as editor makes possible and ought to be appreciated for its worth.

And so it goes on, the minute pathology of

the society, upon close inspection, becomes the gross anatomy, and if, in time, the society becomes your hobby, it will not be long before you become the society's hobby.

THE ILLINOIS SCHOOL FOR THE BLIND WITH ITS RECORD OF THE CAUSES OF BLINDNESS.*

A. L. ADAMS, M. D.,
JACKSONVILLE, ILL.

Previous to the year 1830, no special attention had been given to education of the blind in the United States. About this time certain progressive men in the eastern states became interested in the problem and for the first time, the deaf and dumb, and the blind were included in the national census.

In 1832 the New England Asylum for the Blind, in Boston, and the New York Institution for the Blind in New York City were opened. In 1833 the Pennsylvania Institution for the Education of the Blind first admitted pupils. These are known as the pioneer schools.

The Illinois Institution for the Education of the Blind owes its origin largely to the interest and labor of a blind man, Mr. Samuel Bacon. He came to Jacksonville in 1847, shortly after his graduation from the Ohio School for the Blind at Columbus, to seek employment as an instructor in a school for the blind, soon to be opened in Jacksonville. He found the supposed school for the blind was in reality the first hospital for the insane in Illinois, which was then being erected. He remained in the city several days and was encouraged by leading citizens to attempt the establishment of a school for the blind.

Shortly after this he visited Springfield, where the constitutional convention was in session and where he had an opportunity of meeting many of the prominent men of the state.

He left Springfield for Galena, going by stage via Peoria, Hennepin and Dixon. He kept the interest of the blind children on his mind and kept up a vigorous correspondence with their friends.

In the following spring, in April, 1848, he returned to Jacksonville and met those who had given him encouragement. It was then an organization was created whose object was to gather information to show the necessity of such a school for the education of the blind. Also to open as soon as possible a private school in Jacksonville, where the value of such instruction could be demonstrated to all.

To defray the expenses of this undertaking subscriptions were solicited from the citizens of the town. The returns were sufficient to guarantee the support of the enterprise.

Mr. Bacon was authorized to continue his work of securing information concerning the blind in the state and interesting their friends.

This he did and after many months of active labor and correspondence, during which he visited many counties, traveling on foot, by stage, on horseback, by boat and by wagon, covering over two thousand miles, he secured the names of nearly sixty blind children, many of whom he visited.

On June 5, 1848, a private school was opened with four pupils; Mr. Bacon was retained as instructor. The school was in session seven months.

Of the work done Mr. Bacon says: "The pupils were taught to sing twenty quartettes. The geography was elementary as we had no maps. In arithmetic they were taught all forms of fractions, also cube root; and they were able to solve any arithmetical questions."

Early in January, 1849, these four pupils were taken to Springfield and on the ninth were exhibited before the members of the legislature in order "to satisfy them that the blind could be and ought to be educated."

"An act to establish the Illinois Institution for the Education of the Blind," drawn by Judge William Thomas of Jacksonville and introduced by Hon. (afterwards governor) Richard Yates, was passed on the next day and on January 19 was approved by Governor Augustus C. French.

Considering the interest taken by the citizens of Morgan county in showing the necessity of such a law, it need cause no surprise that the first trustees were Morgan county men and that the location was in Jacksonville.

Mr. Bacon served as the first "principal" of the school at a salary of six hundred dollars per year.

It will probably be of interest to know that

*Read before the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 20, 1914.

Mr. Bacon was instrumental in later years in establishing two other schools for the blind, one at Vinton, Iowa, another at Nebraska City, Nebraska.

Mr. Bacon's term of service was for only fourteen months when he was succeeded by Dr. Joshua Rhoads, a graduate of the Medical Department of the University of Pennsylvania, who had served as superintendent of the Pennsylvania School for the Blind.

His influence was far reaching in establishing good standards for the school during his twenty-four years of service.

While the original title was the "Illinois Institution for the Education of Blind," it has been a school since its inception and its official title now is "Illinois School for the Blind."

Practical knowledge comes to the blind through their hands, their fingers being in effect projections from the brain. It has been found that blind children with kindergarten training more readily receive instruction than those without it, so the kindergarten occupies an important position in the scheme of education of the blind.

The ear, the heart, and the hand are all cultivated in the kindergarten. They even use colors, for many are able to distinguish them. These little ones are certainly happy in their work, but what is even of more importance, their minds are stimulated at the proper time so they may develop in a more nearly normal manner.

The effort is made to have them enter at the age of six years. Following the kindergarten is the primary and grammar school taking eight years and a high school course of four years.

With the use of the Braille slate and text books with raised letters, the blind pupil learns to rely on himself.

Industrial training and sloyd are a part of the system of education from the beginning. Chair caning, broom, basket and hammock making, piano-tuning are learned by many and are valuable even if not followed as an occupation. They "learn to do by doing," as some one has expressed it.

The blind as a class are, as you know, greatly interested in music. All the pupils are given an opportunity to obtain a musical education and they derive much pleasure and profit by means of it.

Included in the regular course is physical culture; all pupils are required to attend the gymnasium and exercises under the direction of a capable instructor. Those who have not sufficient talent for music to make the teaching of it worth while, are given manual training, while the pupils are required to take the literary course.

No pupils are taken for only special studies. The methods and course of instruction are as nearly as possible the same as in seeing schools, the main differences being the greater amount of time required to get results and necessarily covering less ground in each study.

One handicap is an insufficient supply of modern books because of the cost of production, an ordinary school book worth one dollar and half, when produced in the type used by the blind costs twenty-one dollars.

There are four principal existing types used by the blind of the world, and two used in the schools of this country, causing much confusion and tending to retard the education of the blind.

An effort has been made to have a uniform type adopted.

The leading organization of the blind in this country is known as the American Association of the Workers of the Blind, and is composed of one hundred subordinate societies, from thirty-one states.

At its session last summer in Jacksonville, after preliminary investigation extending over several years, it adopted a modified Braille system to be known as the "Standard Dot System." It will be universal in its application.

During the last year two hundred and twenty-two pupils attended the State School for the Blind and forty-six blind children attended the public schools of Chicago.

The physical condition of many of the pupils, especially those from the larger cities of the state, is much below normal. This may be attributed to their former environment or the disease which made them blind.

Every effort is made to improve their physical condition by suitable work in the gymnasium and an abundance of fresh air, both day and night is provided.

The dormitories never have more than six pupils. The school is divided into seven families, a supervisor being in charge of each family. The supervisor is responsible for his pupils dur-

ing the time school is not in session, the teachers, of course, having charge during school hours.

It is the purpose of the school to have in attendance all children of school age in the State of Illinois, "whose sight is so defective as to bar them from engaging in ordinary occupations, provided they are free from contagious diseases, in general good health, and not mentally defective."

What is the aim of those who are engaged in educating the blind? Professor Burritt of the Pennsylvania School for the Blind in his annual report[1] says: "The aim of education is to prepare for complete living. To live completely means to be as useful as possible and to be happy. By usefulness is meant service, i. e., any activity which promotes the material or the spiritual interests of mankind, one or both. To be happy one must enjoy both his work and leisure."[2]

This statement of the aim of education implies not only the opportunities for leisure, but for work; no normal person can be useful and happy unless occupied.

So the effort is not only to give them a general education, but to train them as far as possible in some work that will make them wholly or in part self supporting.

Sufficient sight to enable them to get about comfortably *depending upon that little sight* is a great advantage in the problem of self support for the blind.

A record of all pupils on entrance has been kept to determine the amount of vision, if any, the cause of blindness, and the necessity for treatment or prophylaxis in case of contagious eye disease.

This record is of 848 pupils and extends from 1894 to 1913.

TABLE 1. CLASSIFICATION OF THE BLIND ACCORDING TO AGE AT TIME OF ENTRANCE.

Age—	Total
Five years	14
Six to ten years	213
Eleven to fifteen	215
Sixteen to twenty	164
Twenty-one to thirty	112
Thirty-one to forty	51
Forty-one to fifty	43
Fifty to sixty	17
Over sixty	1
Age not given	18
Total	848

During the past five years all the adult blind are sent to the Industrial Home for the Blind in Chicago, excepting those who desire to learn to read and write the Braille, or who wish to learn piano-tuning.

TABLE 2. THE DEGREE OF BLINDNESS.

		Pct.
Totally blind	231	27
Light perception only	284	33
Nearly blind	159	18
Useful vision	171	20
	845	

By "useful vision" it is not to be thought that there are seeing pupils in the school. By it is meant those having vision enough *by using it* to get about with comfort, yet have not sufficient sight to get an education with ordinary print.

Some of this class, although able to see ordinary type at close range, should not use the eyes because of some diseased condition of them making such use hazardous, as in high degree of myopia and choroiditis.

The nearly blind are those having vision sufficient to see large objects or may be able to count fingers at one foot, but not able to get about with ease depending upon sight alone.

Each year one or more children appear and are accepted, having one blind eye or maybe strabismus, in whom one eye has normal vision.

In deciding who should be sent to the school not entirely the amount of vision, but rather the final outcome of the case must be considered. If the probabilities are that vision will be lost in a short time, then vision during that time can be used to immense advantage in getting adjusted to the new system.

Those children having scarred corneae, following trachoma and having fair vision, i. e. (6/20), by judicious treatment, may secure vision sufficient to be educated with ordinary print with much less effort, and no especial risk for their vision.

TABLE 3. CONGENITAL BLINDNESS. THIS GROUP INCLUDES THOSE BORN BLIND AND THOSE BORN WITH GERMS OF BLINDNESS ALREADY EXISTING IN THE EYES, BUT THE PROCESS NOT COMPLETED.

Anophthalmus } Microphthalmus }	13
Buphthalmus	8
Atrophia nervi optici	13
Retinitis pigmentosa	7
Choroiditis and choroido-retinitis	19
Kerato-conus	3
Keratitis	3
Albinismus	5
Cataract (congenital)	67
Undetermined conditions	12
Total	143

16.8 per cent.

In considering the causes of blindness I have attempted to follow the scheme of Magnus. In

1. The Aim in the Education of the Blind, O. H. Burritt; Outlook for the Blind. October, 1913.

2. Educational Aims and Educational Values, p. 5; by Paul H. Hanus, assistant professor of the history and art of teaching, Harvard University.

his treatise on blindness among youth, 1886, Magnus confines himself to those below 20 years of age, and analyzes the statistics of 64 European institutions for instruction of the blind. He gathers 3,204 cases of incurable blindness in both eyes. He found 551 or 17.19 per cent were congenital, 1,060, 33.08 per cent due to idiopathic disease of the eye, 261 or 8.15 per cent due to injuries and 1,063 or 33.17 per cent from constitutional diseases.

In attempting to secure information concerning the time of becoming blind, I may have been misled. These were reported by parents or by the pupils themselves as having been born blind. There are several conditions tabulated among the congenitally blind that may have developed in early life.

In the statistics on blindness in Norris and Oliver, Magnus, Trosseau and Oppenheimer, the congenitally blind amounted to about 3 per cent in each, while I have found 67 cases of congenital cataract or over 7 per cent of the total examined.

TABLE 4. BLINDNESS DUE TO IDIOPATHIC DISEASES OF THE EYE.

		Pct.
Ophthalmia neonatorum	159	17
Ophthalmia (gonorrheal)	13	..
Trachoma (granulated lids)	56	..
Diphtheritic conjunctivitis	4	..
Disease of the cornea	36	..
Iritis and irido-choroiditis	19	..
Choroiditis	11	..
Detachment of the retina	9	..
Myopic choroiditis	3	..
Neuro-retinitis	1	..
Atrophy of the optic nerve	91	..
Glaucoma	13	..
Cataract	7	..
Undetermined	20	..
Total	442	33

TABLE 5. TRAUMATIC BLINDNESS.

Direct injuries (of the eyes)	43	5
Injuries of the head	14	1
Sympathetic ophthalmia	77	9
Total	134	15

TABLE 6. BLINDNESS DUE TO GENERAL DISEASES.

Brain and its membranes and spinal cord	45
Measles	19
Scarlet fever	11
Syphilis	4
Typhoid fever	10
Smallpox	9
Lagrippe	4
Spotted fever	1
Whooping cough	1
Mumps	1
Purpurahem	1
Total	106

Twelve per cent.

The number of blind as a result of trauma is 134—15 per cent. 42 or 4.9 per cent lost their sight as a result of direct injury to both eyes.

There were 77 or 9.2 per cent who were injured in one eye and became blind as a result of sympathetic inflammation developing in the other eye.

14 or 1.6 per cent lost their sight as a result of injuries to the head.

Of the 848 cases of blindness here tabulated, 232 were due to disease of the conjunctiva (27 per cent). Of this number 159 or 17 per cent were due to ophthalmia neonatorum.

Among the last 149 pupils admitted to the school 37 (24 per cent) lost their sight from ophthalmia neonatorum.

In tabulating those blind from general disease I have taken those whose blindness was an immediate result of that general disease.

Without doubt a large percentage of the blindness here attributed to idiopathic disease of the eye was the direct though later result of a systematic disease.

By adding together the 77 cases of blindness due to sympathetic ophthalmia, i. e., where a person was injured in one eye and because of lack of or ineffective treatment, the disease developed in the fellow eye, and the 56 cases of trachoma or "real granulated lids," and the 159 who lost their vision as a result of ophthalmia neonatorum, we have in total 292, or 33 per cent, in whom the blindness could have been avoided.

Aside from these are 56 who were made blind by direct injury to both eyes or the head. Many of these would not have become blind, had sufficient care been exercised in having safety devices used about machinery or protective goggles been worn in doing dangerous work. It is generally known that 40 per cent of the blindness of the world is preventable.

The 77 persons blind from sympathetic inflammation, could nearly, if not quite all have been avoided by the prompt removal of eyes that were sightless and chronically inflamed as a result of injuries or accidents, most of these persons without having had skilled advice, and not realizing the danger they were entailing, having let the precious time slip by when the removal of the injured eye would have prevented the transfer of the disease to the fellow eye.

Ophthalmia neonatorum or disease in the eyes of the new born shows the largest single cause of preventable blindness. And sad to relate this is in larger proportion than heretofore.

This disease is infectious, preventable, and al-

most entirely curable and shows the terrible penalty paid by ignorance.

Before the days of antiseptics, this disease was a scourge and in maternity hospitals as many as twenty per cent developed this disease. In 1880, Crede, of Leipzig, presented to the medical profession his epoch making paper announcing the cure of ophthalmia neonatorum by the use of a 2 per cent nitrate of silver solution, one drop of which was dropped on the cornea of each eye at the birth of each child. After using this preventive treatment, the number of cases developing was reduced from almost 10 per cent to 2 per cent. Furthermore the same treatment carried out where the disease had developed, proved very satisfactory and a large per cent were cured.

At Sloane Maternity Hospital in New York City, among 4,660 births during a period of six years, in which Crede's treatment was carried out there were no cases of ophthalmia.

To understand this disease it seems necessary for me to speak plainly as to a medical audience. This disease is caused by a germ developed in the vaginal canal of the mother and transferred to the eyes of the baby during its birth. This germ is generally the gonococcus and the presence of the disease is usually considered as a proof of immorality of one or both parents. Study of the disease and statistics go to prove that in 2/3 of all cases examined, the gonococcus is found by microscopic examination. In the 1/3, however, the pneumococcus, staphylococcus, and other germs are present.

What can we do to prevent this terrible disease from claiming its victims? I think it is an educational problem mostly. It is only a question of reaching the people, and especially the mothers, and the womens' clubs to get results.

The physicians are doing what they can to give publicity to the facts, but the very people that need it most do not hear their appeal.

There are at least two ways of approaching the solution of this problem. First. Our boys and girls should be educated at an early period of their lives, that they must live clean moral lives throughout. There should be no double standard of morals. Your daughters should have husbands and your sons have wives that are not only free from venereal disease, but the demand should be that they should never have had it. The lingering effects of the "sowing of wild oats" by young men and boys is the cause of many of these blind babies and invalid mothers. This object to attain may be an ideal, but there is no reason why we should not strive for it.

Second. Measures should be taken at birth to prevent the development of inflammation of the eyes. Microscopic examination of the vaginal secretions of the mother, in suspicious cases before the birth of the child should be made. If germs are found likely to cause eye disease, antiseptic douches should be used to render the vaginal canal aseptic.

We must reach and educate the mothers who do not read the papers or magazines and may seldom employ physicians. A few words at the right time would make them ready for and willing to have the use of the preventive treatment, i. e. (the silver nitrate drops for the eyes, five or ten grains to the ounce), and instead of objecting they would expect that treatment. All regularly educated physicians are taught in the medical schools how to care for these cases. Where there is any doubt about the matter, time should not be lost, but some one known to be familiar with the best methods of treatment should see the patient as early as possible.

Ophthalmia neonatorum should be made a reportable disease as is scarlet fever, diphtheria and other contagious diseases. Every case should be investigated by public health officials to determine whether the infant is properly cared for. If not under the care of a competent physician it should be so placed at once.

In Chicago an ordinance has been passed because of the excellent work of Dr. Willis O. Nance, one of that city's aldermen, which requires the reporting of all cases of ophthalmia neonatorum, by physicians, midwives or other attendants.

Much is expected of this ordinance in results and I hope we may soon see the day when we can have a state law covering the same ground.

What is most needed in Illinois at the present time is a thorough and persistent campaign of education. This must be among the people throughout the state.

To educate and care for the blind is a very necessary and highly commendable work, but far better is it to use every available aid to prevent avoidable blindness.

As has been done in the fight against tuberculosis so we must do to prevent blindness. That is, secure the interest and co-operation of the people of our state, let the real facts become known and much blindness will be avoided.

Adequate and modern laws should be enacted and what is of more importance a large number of interested citizens should see that they are enforced.

Never before has the public taken such an interest in health topics and hygiene as the present time.

The diffusion of information by public lecture and the distribution of literature should increase that interest so that many eyes may be saved and much suffering avoided.

MY EXPERIENCE WITH INTRAVENOUS INJECTIONS OF NEOSALVARSAN.*

E. Sargent, M. D.
MOLINE, ILL.

Replying to the doubt in the medical literature as to whether salvarsan (the so-called 606) or the neo salvarsan (the so-called 914), one or the other or neither should be used in the treatment of syphilis and as to whether, when used, it should be used intramuscularly or intravenously, I present this paper and wish to record a vote for the use of neosalvarsan intravenously.

I have made special effort to prepare myself to give these intravenous treatments correctly and in addition to my own patients I have given them for eight other physicians and with such excellent results and such freedom from ill effects that I feel it worthy of consideration. In all my work I have used Wassermann test liberally. All the injections except on one case in the hospital have been given in my office in afternoon or evening and patient has gone home immediately on car and kept quiet, eaten little supper, and retired early in the evening and all were ready and able to go to their usual work the next morning without any ill effects whatsoever. There is one exception to this. A man who suffered no ill effects after the first injection did after his second injection. The second injection was the same sized dose as the first, but contrary to orders he ate a big supper and went out and drank beer till midnight and was sick therefrom for a week. The blame for this misfortune I place in the proper place, I am sure. This man, however, was not feeling exceptionally well at the time of the injection, although he had worked all day and the diagnosis of any particular trouble was impossible.

First: As to whether either one of these preparations should be used. There is no doubt in my mind that both salvarsan and neosalvarsan are valuable additions to our list of drugs in the treatment of syphilis. This is shown so well by one case suffering with mucous patches of mouth and throat so that he could hardly eat or swallow and could not speak above a whisper and who has had liberal mercurial treatment and who cleared up completely in twelve days after his first small injection of neosalvarsan.

Second: As to which, salvarsan or neosalvarsan should be used: I favor the neosalvarsan. It may be true as some state that one dose of the former gives better results than three or four of the latter, but I think it is also true that the former is much more liable to serious results, and as it is so embarassing to have a patient become very ill and perhaps die following a treatment, I would use that which is comparatively safe even though it must be repeated more often, and the fact that such excellent results can be secured by the neosalvarsan shows that it is not without its merits. Used intravenously, salvarsan seems more liberal to injure and clog a vein, as complained of by one writer from Kansas City.

As to the value of the so-called sero-salvarsan intraspinous treatments, I have had no personal experience, but I believe it possible to get good results in syphilis of brain and chord by simple intravenous injections. This is shown by the following case, in which I began treatment on December 27, 1913, with a diagnosis of gumma of brain. He was in the hospital, unconscious, paralysis of entire left side including tongue, pupils dilated and inactive, involuntary evacuations of bowels and bladder. Improvement began three or four days after the first injection of neo-salvarsan and continued steadily. In a few weeks he was able to use his arms quite well and able to walk, and soon left the hospital. He very soon afterwards showed some control of evacuations, pupils regained proper size and activity

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 21, 1914.

and he became able to articulate fairly well but with much effort. He is now, after five months treatment, in quite normal condition except that his tongue seems stiff and articulation is very difficult and his mind has not regained its normal strength. I am not expecting much more improvement in him from now on and consider that a certain amount of brain injury will remain irreparable.

In administering these treatments I consider the preparation of the water the most essential part of the treatment and intravenous injections should not be given by any one not properly equipped with distilling apparatus and especially and always with a porcelain filter of some kind. The temperature should be tested by a sterile thermometer and used at twenty degrees C. I use a simple gravity outfit and dissolve the powder in about 240 C.C. of water properly sterilized and always give the injections as soon after opening an ampule as possible. The needles should be especially well made, with smooth finish, and resharpened every day or two on stone and leather. This makes a clean puncture in the delicate vein rather than any tearing and may account for my freedom from stopping a vein as complained of by some others. I give any number of treatments in the same spot in the same vein and have had no trouble with injury to vein.

In conclusion I would offer the following: First: In the treatment of syphilis use neosalvarsan intravenously, giving about six injections at monthly intervals. Second: Give injections by most improved technique, paying especial attention to details. Third: Direct patient to eat lightly before and soon after treatment and rest quietly for a few hours. Fourth: Never give a treatment unless patient is in good health aside from the disease for which you are giving treatments. Fifth: Give mercury intramuscularly during entire course of treatment. Sixth: Depend on Wassermann test for indications for treatment and of cure.

THE ONLY SURE WINNER TO DATE

—Courtesy of Mr. Bradley and The Daily News.

ILLINOIS MEDICAL JOURNAL

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SEPTEMBER, 1914

Editorials

PROCEEDINGS OF MEETING OF ALIENISTS AND NEUROLOGISTS.

The proceedings of the meeting of Alienists and Neurologists will be published in a special edition of the JOURNAL in October. The papers and discussions of this meeting contain invaluable contributions to the literature of the cause, cure and prevention of insanity, feeble-mindedness, crime and mental degeneracy and the publication will be invaluable for the medical man, judge, lawyer, humanitarian and social worker. No library on these and allied subjects will be complete without this work.

Subscriptions may be sent to the office of publication, 3338 Ogden avenue, Chicago, by money order or check on Chicago banks. Price $2.00. If out-of-town checks are sent, add 10 cents for exchange.

THE HARRISON ANTINARCOTIC BILL.

Saturday, August 15, the United States Senate finally passed the long-discussed and much delayed Harrison Antinarcotic Bill H. R. 6282). This bill was passed by the House of Representatives in July, 1913, and has been pending in the Senate ever since that time. It is now in the hands of a conference committee, consisting of five Senators and three Representatives, and it is highly probable that within a few days this committee will have agreed as to the few points of difference between the House and the Senate bills and that it will be signed by President Wilson. It is known as an administration measure, and it is hardly likely that there will be much further delay in its becoming law.

The bill provides, among other things, for a complete record of the sale or dispositoin otherwise of all narcotic drugs, including opium and its alkaloids, compounds and derivatives, and of coca and its alkaloids and derivatives from the time they are admitted into this country until they reach the final purchaser. Everyone who deals in, markets, or handles these substances in a professional way must take out a special license from the Government, the fee for this license, in the case of physicians, dentists, veterinarians, and pharmacists being $1.00 for each person or firm. Every dealer who purchases any of these goods from any other person will be compelled to make out his orders on a special serially numbered blank supplied by the government, so that all orders can readily be traced by federal officials.

The retail pharmacist can dispose of these drugs only upon the prescription of a physician, dentist or veterinary surgeon, and he must keep such prescription for a period of two years. As will be readily seen, this will work no hardship whatever upon the drug trade, since every reputable pharmacist already is accustomed to preserve prescriptions of this character.

The pharmacist is also permitted to sell, without license and without making a record, preparations of opium "which do not contain more than 2 grains of opium, or more than ¼ grain of morphin, or more than ¼ grain of heroin, or more than 1 grain of codeine, or any salt or derivative of any of them, in 1 fluid ounce; or, if a solid or semisolid preparation, in 1 avoirdupois ounce." A pharmacist may also sell, without license or making record, "liniments, ointments or other preparations that are prepared for external use only," except that the unrecorded sale of preparations of any kind containing cocaine or alpha, or betaeucaine, or any of their salts, is prohibited even in this form.

As will plainly be seen, the bill is in no sense oppressive to the drug trade, which is given every reasonable privilege and will not be interfered with in the slightest in the performance of its regular duties. Indeed, there are those who believe that the drug trade and the proprietary and patent-medicine interests are treated too generously, inasmuch as the section just quoted, making exemption of certain narcotic-containing preparations, opens the door for the unlimited sale of the so-called "household remedies" containing this dangerous class of drugs, such as the soothing syrups, the opium-containing diarrhea and cholera cures, cough cures, and even paregoric. These may be sold absolutely without restriction by any licensed dealer, in many states even by the ordinary country merchant.

The doctor, on the other hand, is not permitted to dispense, without restriction, doses equally small, provided these happen to be given in tablet or pill form. In other words, practitioners are distinctly discriminated against in favor of the retail druggists and the patent-medicine makers. The medical profession has not pushed its opposition to the objectionable "household medicine" exemption, fearing that such oppositon might prevent the passage of an otherwise excellent bill, although its dangers are recognized and were clearly pointed out by Senator Lane during the discussion on it in the Senate.

Under the circumstances, therfore, it was somewhat surprising to find one branch of the drug trade, represented by the National Association of Retail Druggists, strongly aligned against the medical profession and demanding that this bill be so modified as to put oppressive and dangerous restrictions upon our profession.

The retailers caused to be introduced in Congress amendments to the Harrison bill which, if passed, would have made it illegal for the physician to give any narcotic drug without a prescription unless he administered it in person, with his own hands. These amendments would also compel every physician to make a complete and elaborate record of every dose of a narcotic drug which he might administer to a patient, no matter how small, no matter what the emergency, no matter what the conditions. He was to be compelled to keep a book in which every hypodermic dose of morphin, every local application of cocaine, every diarrhoea tablet which he might leave with the patient or send to a patient for immediate relief should be recorded; failing which, he would be facing the cheerful alternative that, if his records of narcotics dispensed did not correspond with his records of narcotic purchased, he would be subjected to a heavy fine and possible imprisonment.

The medical profession vigorously opposed these proposed amendments, and the United States Senate, in its wisdom, after ample discussion has stricken them out. Consequently, the bill as finally passed by the Senate, is acceptable to the medical profession, while it is sure to be effective in curtailing narcotic abuses.

However, the National Association of Retail Druggists, which happened to be in session soon after the passage of this bill by the Senate, has again shown its determined animosity toward the medical profession by flooding Congress with telegrams (1,500 of these, we were informed, were sent into Washington in a single day), objecting to the removal of the record-provision from the bill and demanding changes limiting medical initiative. It is significant that all the demands made by the Druggists' Association centered upon the application of this bill to the medical profession. In other words, our druggist friends have shown great zeal and strenuosity in reforming the physician, and reforming him in such a way as to help their own trade. No such zeal has been exhibited by them in attacking legislatively well-known and manifest irregularities in drugstore practice.

It is hardly necessary to say that tactics of this kind will not be received with favor by medical men. They will not serve to draw the two professions closer together; rather, they will only serve to broaden the present unfortunate gap between the doctor and the druggist and delay the coming of that feeling of generous mutual confidence that heretofore has seemed to be upon the increase, and which is so much desired by us all.

We most sincerely hope for a rebirth of the "get-together movement" between physician and pharmacist, but such a movement, to be successful, must have its foundation upon an anxiety to do *something* for the other fellow, rather than a determination to *"do"* him in some way if he does not contribute sufficiently to the support of members of the sister profession.

The national narcotic law will place considerable burdens upon the medical profession—more, indeed, proportionately, than upon any other class—but it is worth all the trouble it will cost. We ask the physicians of Illinois to give it hearty support.

MR. FOLONIE'S ARTICLES.

Beginning with this number we will have a series of articles written by Robert J. Folonie, LL.B., on Actions for Civil Malpractice.

Mr. Folonie is attorney for the Medico-Legal Committee of the Illinois State Medical Society. He has had a vast experience in this line as legal counselor for other liability and insurance companies, and anything coming from his pen on this subject is considered authority.

We are exceedingly glad to get these articles, and know that the readers of the JOURNAL will be interested in them. Furthermore, we think they will be the means of preventing some of the ever-increasing number of malpractice suits started against physicians.

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, LL.B.,
CHICAGO, ILL.

When a newly built vessel glides down the ways, the ship carpenter takes justifiable pride in the newly born ship and in the consciousness that his work is well done. He knows too, that in seasons to come, the vessel will from time to time return to the repair dock to be overhauled, to have her seams caulked, her hull painted, and rotten planks replaced;—and this, whether or not she has shown signs of weakness. He knows too, that if she meets with stress and strain and her existence is threatened by the elements, that salvors, with proper equipment, will exert every effort to save her; for the reward of the salvor is high.

When a tiny new sail is raised on the sea of life, the physician may be certain that the craft he has helped launch will not return while breezes blow fair, but will come to the repair dock only when seams are sprung, oakum knocked out, or masts carried away. He knows she will be poorly sailed, and badly handled, and if he undertakes the work of a salvor, instead of being doubly rewarded, he often meets the claim that he used—not a caulking-iron to pack her seams, but a brace and bit to founder her.

One of the most harassing experiences a physician may anticipate as a possible attendant of his profession is a suit for claimed malpractice. The higher his professional ideals, the greater will be his shock and chagrin when the accusation is made. The wider his reputation and the greater his clientele, the more likelihood there is that he will be made a target for such claims.

It is but rarely that the lawyer is sued for neglect of his clients' interests, while the clergyman when sued at all finds the causes in a complete departure from the clerical field into "primrose fields of dalliance."

Physicians are frequently sued for claimed malpractice, and it seems rather strange at first blush that they should be specially selected from among the learned professions as victims of what most often proves to be a mistaken or malicious claim.

The immunity of the lawyer is somewhat difficult of deduction. It may be that the lawyer so frequently has his fees contingent on results that self-interest is presumed to counteract natural sloth, or it may be that the lay conception of a lawyer colors the client's mind to such an extent that he hopes little and expects nothing at all, and therefore may never feel the keen shock of disappointment.

The oriental pays his physician while he is well, suspending all payments during ill health. We occidentals view the matter from an entirely variant and essentially barbarous viewpoint. When well we need no physician and need pay him nothing. If we become ill and recover it is due to personal superiority that disease is overcome. Either we are unusually robust and "wore out the illness" or at a critical point, we used elderberry tea, thought healing or mustard plasters, and at once things took a turn for the better. The ministrations of the doctor had little if any, part in the recovery and there is no reason why he should be paid.

If we do not speedily recover it is the fault of the physician, for we are manifestly different from all other patients—more robust—more intelligent—our ailments more interesting.

If disease is not arrested—or leaves painful or disagreeable results, the physician not only should not be paid, but should be sued for malpractice.

Baseless claims of malpractice most often have their genesis in:

(1) *Ignorance*—Which classes indiscriminately as cure-alls—thought cures, electricity, massage, radium, medicines, X-rays, and spring waters (preferably hot or nauseous); which believes preventive medicine is an interchangeable term for filtered water; which regards the physician as a free public servant, employing the agencies of an Indian medicine man, witches' brews and bottled lightning.

(2) *Cupidity*—Usually coupled with ignorance, and receiving its impetus from the urgings of briefless or unscrupulous lawyers, the jealousy of a fellow-physician, or the prompting of a layman who "was cured of identically the same trouble by Dr. X."

(3) *Delusions*—Either insane or hypochondriacal, leading to more or less logical belief that great wrongs have been suffered, or injury has been intentionally inflicted.

Attempt will be made in future articles to discuss malpractice cases more or less clinically with a view to making clear the causes for their being and the attitude of the physician, with a view to minimizing their number.

DR. FARRELL A CANDIDATE FOR CONGRESS.

Dr. P. J. H. Farrell is a candidate from the 10th congressional district for the Democratic nomination at the primary, September 9.

Dr. Farrell has served the Chicago Medical Society as councilor, secretary and as trustee and in these offices his ability and energy as an organizer and director have made him one of our best known members.

The profession and the medical press have for years been urging doctors to seek public office, where their experience in dealing directly with the people in their homes, in looking after their physical and material welfare, in learning the needs of the community, makes the doctor an ideal representative in the legislative chambers.

The medical profession should have representatives in congress and in Dr. Farrell we have a successful physician, familiar with medical organizations, medical men, their professional and economical problems. A man thoroughly familiar with official life in Washington where he is well and favorably known. He would avoid the loss of time and embarrassment which is the usual experience of a new congressman, and would lose little time in making his influence felt in congress.

There is no limit to the energy of the doctor. While a surgeon in the army he commanded the first United States soldiers that landed in the Philippine Islands and received from the war department "honorable mention for bravery under fire of the enemy." When San Francisco was destroyed he organized the Chicago Relief Expedition and in 24 hours was on his way to the stricken city with 100 trained nurses and 25 physicians and medical and surgical supplies for 20,000 patients, receiving the thanks of the Mayor of San Francisco and the Governor of California for the help rendered during the two months of dire need. He was one of the original national organizers of the Boy Scouts and last summer he promoted the Boy Scout relay race from Washington, D. C., to Chicago, using more than 2,000 boys to carry the message from President Wilson to the Mayor of Chicago.

Every doctor in Chicago, including, of course, those in the 10th district, which embraces the North Shore and all of Lake County, from North avenue, between Racine and N. Western avenues, and all the territory north of Irving Park boulevard to the Wisconsin State line, should interest himself in the nomination of Dr. Farrell and his subsequent election. He would be an honor to the state, a credit to the profession, a powerful force for the public good.

DR. JOHN P. RIGGS, CANDIDATE FOR CONGRESSMAN AT LARGE.

Dr. John P. Riggs, of Media, Henderson County, Illinois, is a democratic candidate for congressman at large, subject to the primary election on September 9.

The doctors of Illinois should be alert and see that the doctor is nominated. The profession, as well as the laity, need the services of good men in the legislative bodies, and no class of men are better fitted for such service than are the doctors.

TUBERCULOSIS NOTES

Excellent results are reported in the treatment of tuberculosis of the skin, serous membrane, lymph nodes, bones, and joints with heliotherapy, used extensively by Bernhard, of Switzerland.

S. Adolphus Knopf states there are 200,000 deaths in the United States from tuberculosis.

Next annual meeting of the National Association for the Prevention and Relief of Tuberculosis will be held at Seattle during the summer of 1915.

The safe way to escape tuberculosis through milk is to do away with tubercular cows as a source of milk supply. Where milk is not absolutely safe, it should be boiled.

All medical bodies should have a special tuberculosis meeting at least once a year.

Lavenson (Journal A. M. A. April 18) reports on 66 cases undergoing sanatorium treatment. In 12 cases diagnosis made within a few weeks. In 54 delayed from 3 months to 5 years. 72 different physicians had examined these 54 cases. In 13.8 per cent neither physical examination nor sputum examined nor temperature taken. In 52.7 per cent only was a physical examination made. In 12.8 per cent physical examination and temperature taken and no more. In 8.3 per cent temperature alone was taken. In 4.1 per cent physical examination and sputum examined, temperature not taken. In 5.5 per cent patient complained of laryngeal trouble, and only larynx examination made. This may explain the huge mortality figures.

There is no bottle as yet, plain, colored, or cut glass, that contains a cure for tuberculosis.

MEETING OF MEDICAL SOCIETY OF THE MISSOURI VALLEY.

The Medical Society of the Missouri Valley will hold its annual meeting Sept. 17-19, at Colfax, Iowa. The attendence at this meeting is expected to be quite large. The Hotel Colfax will be the headquarters. The program is quite lengthy, and judging from the titles of papers and the authors, the meeting will be one of interest. We predict a good meeting, and hope many of our readers may attend.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT UNITED STATES PUBLIC HEALTH SERVICE.

Washington, August 25, 1914.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B street, SE., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Stapleton, N. Y., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, October 19, 1914, at 10 o'clock A. M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the public health service, when applications for examination at these stations are received in the bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet 4 inches, nor more than 6 feet 2 inches in height.

The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon generals $4,000 a year. When quarters are not provided, commutation at the rate of $30, $40 and $50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

Auto Sparks and Kicks

ELGIN'S TIRE STORY.

Tires! Another chapter has been written on them. It was told in Elgin's 2 days of racing.

Elgin this year has demonstrated that there is something more than rubber and fabric in a tire; that the life of a tire depends on many factors, many of which are inherent in the tire and others which are to be found in the car, while others exist in the driver, piloting the machine. The sum total of these three comprise the tire story.

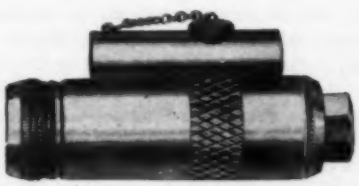
Elgin's race tells us in unmistakable words that the wear you get from your tires depends to some extent on how you drive the car. Do you pick your roads carefully? Do you slow down at the turns? Do you keep the inflation pressure right? If all three are attended to, tire life will be added to.

Go further: Is your car well balanced? Does it hold the road when driving, or leap from side to side? Do your springs prevent too much up and down movement? Is your weight properly divided over front and rear wheels?—*Motor Age.*

PNEUMATIC TIRE DEFLATION ALARM.

An antomatic alarm to warn automobile drivers when the air pressure in the tires becomes too low, has been perfected by The Polo Pneumatic Tire Alarm Company of Chicago.

It positively and effectively relieves the automobile driver from all worry over the air pressure within the tires. The alarm tells him in-



stantly when the pressure falls below the safe running point. It is attached to dust cap threads of the valve stem and replaces both valve cap and dust cap.

Inflate your tires to the proper pressure, then attach alarms. They will tell you when the pressure gets down to the point where continued driving would damage your tires.

They can be adjusted to give alarm at any pressure between 30 and 150 pounds.

WASHING CARS.

The ideas in motor car care and maintenance that obtain in a factory turning out 200,000 cars a year, are naturally of some little interest to the motoring public and we are glad to subjoin the Ford formula for washing and polishing cars, as it appeared recently in the house organ of this concern.

"Nothing will destroy the gloss and finish and new appearance of a car more rapidly than an improper method of cleaning.

"Cheap, injurious liquids are too often used in polishing cars, and though they may appear to give a glossy finish at first they only serve to soften the enamel on fenders and body, naturally damaging the finish of the car.

Body polishes containing hydroxides, acids, etc., should never be used, as they are most injurious to the enamel. A good test for polishes which you suspect may contain injurious chemicals may be made with litmus paper, which turns red in the presence of acids and blue in the presence of an hydroxide.

A large sponge tied over the end of a three-eighths-inch gas pipe three feet long, makes a good car washer. The stream should not be too strong, lest it drive grit and sand hard enough to scratch the varnish. The surface should be dried with a piece of soft chamois skin, keeping it well rinsed out, and wrung as dry as possible.

SCRATCH ON VARNISH.

A means of eliminating a scratch on the varnish of a car body that is said to be very satisfactory is to saturate a soft rag in linseed oil, dip it in powdered rottenstone and rub the scratch gently in one direction only until it no longer shows. Obviously this remedy is of no use when the scratch extends through to the wood or to the foundation of the finish.—*Exchange.*

Society Proceedings

ILLINOIS STATE MEDICAL SOCIETY. COUNTY SECRETARIES' CONFERENCE.

Afternoon Session, May 19, 1914.

Discussion.

Dr. Wilbur H. Gilmore, Mt. Vernon: I was asked some few weeks ago by the chairman of this section to deliver a paper before the secretaries' conference, as it is all one big family, of which I am nominally the head, but I have had troubles of my own this year and I told him that what I had to say I could give in the discussion of these papers. I was secretary of a small medical society for several years, four or five, and I thought I had lots of trouble, but I did not know anything about trouble until I got to be secretary of the state medical society, and, believe me, it is no snap.

Now, as far as a message is concerned, I have no message to the members of those county component societies, who always have meetings and have live wires to keep the societies going, but it is for the fellows from societies of less than twenty-five members that I have something to say. There are forty-five county societies in this state that have rosters smaller than twenty-five members. Now, what are your great troubles? I will tell you the first one. The first great trouble is getting the men to attend meetings. I know all about it. I have been there. You can arrange a fine program and maybe you will have a quorum and maybe you will not. You can have some noted man from a distance come in and you get a few more. You go on and on and pretty soon you get discouraged. But I have discovered a secret that makes for good attendance in a small county medical society, and it will do away with more of these petty jealousies, this backbiting, this refusing to speak on the street, this refusing to consult with a man who should be your best friend. It is in a few words, gentlemen, "Feed the brute." If you want to get a good meeting of a small county society, get some member who is a live wire to entertain the bunch; give them a little feed, something to smoke if you so desire, and other things that go along with that sort of program, and you will have from seventy-five to eighty per cent attendance. The Jefferson County Medical Society died a natural death about two years ago. It awoke spasmodically, but it was not until the first of January, 1914, that it really became alive. Since that time this one county society of approximately twenty-five members has been having an attendance of from sixty to eighty per cent and once as many as twenty-five, including guests, were present, and it is because we have been trying this plan of a little entertainment. Every one is on hand, and when you get them there you can get up an interest in the programs. We can live up to all these ideas, but men and women are men and women and you have to appeal to something besides the intellectual side to keep them on the job, and the way to do it is to have these little lunches. You will find that you will be able to cover up the little bitternesses; get the men out and things will be going swimmingly in a little while.

With the larger societies I want just a word now. That is, when a man moves from your society, report it at once to the state secretary; if you are unfortunate enough to lose a member, report that at once, so that the state secretary can keep his books in some sort of order.

In this connection I should like to say something in regard to the per capita tax. The section of the by-laws that covers the per capita tax can be interpreted in two ways. The trouble is that the words "current year" are not inserted in that by-law. It states in the by-law that "this payment must be made by the fifteenth of April," but it does not state whether it is the current year or the year before. I have found in the one year that I have been secretary of this society that there has been discussion over this matter in various parts of the state. It has cost us some money. A man will say, "I have been accustomed to paying my dues on time," but you will find that he does not mean "current year" and does not think you ought to. Now, something must be done to make that right. It is just as easy for a man to pay his dues on the first of January as to pay them on the last day of December, and he would if he realized how much difference it makes to the secretary. I know what it means to collect dues from your members. A man thinks he is doing you a favor to pay his dues. The only thing is to keep everlastingly after them and, as I said before, feed them something.

Dr. T. D. Cantrell, Bloomington: I am more or less interested, perhaps as much interested in this program as anyone here, and I want to make it a family reunion, because I am the author of the program. I feel wonderfully under obligations to the men that have taken part and helped us with these most admirable papers. I have served my time as secretary of my local society, having served three years, and I believe that is about long enough for any man to serve one society as secretary, and the society believes it, too, and they elected another secretary. So I am going to say a few farewell words. I am in a position, you see, where I can say them and run if they do not suit, because not being a secretary any longer after this month, I will not be a member of this organization; only a visitor.

Now, the president's paper* deals with the most beautiful principles, principles that if they were lived out would solve the problems that are before us as a medical profession, principles that every man needs to have, that every man should try to live up to. That was a most excellent paper, but the secretary as he goes about among his members—and he has to

*Printed in July Journal, page 1.

go out among the members, too; if he did not we would not have members very long—comes in contact with a good many things that ought to be removed from the local society and taken charge of by the state society. One battle there can settle what it would take one hundred and two battles and more in the local society, and then it would not be settled. The question is, What cannot a man do and be a member of the Illinois State Medical Society? It is not what a man can do and be a member of my McLean County Medical Society down there. I have discouraged starting a fight all along these lines; all the time I have been secretary I have been sitting on it, holding it down, keeping it down. The question is, how far can a man go and be a member of the State Medical Society? I don't think we have the worst society in Bloomington by any means. I have visited some other societies. I was over at Oliver's, too, and they have their little family jars over there. Not in Decatur, of course. I know something about the other societies over the state; they are having the same troubles we are having. They have men, as we have, who are doing work for the whole family for $1.50 a year. We have men, friends of mine, too, just fine fellows, but they can do it and be members of the State Medical Society and of the American Medical Association and of the McLean County Medical Society, and they say, "What's the difference?" We have other members who will do the work for $2 and include all the visitors. And they are the highbrows, too. They have these things at Peoria also. I won't say as to Decatur, but I know it is so in Bloomington.

Now, that may be all right. Just as the doctor said in his address, it may be that we are up against this and that we are going to have to do contract business. I don't think there is a laboring man in the city of Bloomington today who is not provided for if he cares to accept it. This is going to become a matter of legislation after a while if this goes on. We are going to have in our legislature an insurance act like they have abroad, and then they are going to fix a price on Government doctors. And if we are going to furnish members who will do business for $1.50 a year for a whole family, what position are we in to go before a legislature and say, "We cannot live on what you fix for us"? "Oh, but you have," they will say. "You have been doing it for that price. Why cannot you do it for the Government?" It does not make much difference to me. It is the younger men who are going to be hit by it. It does makes a difference to the younger man, in whom I have so much interest. He is going to practice medicine for a good many years for a livelihood.

I have become convinced in my three years of experience as secretary of the McLean County Medical Society that this matter, if it is ever settled, will have to be settled in the State Medial Society and should not be agitated where one man is the direct competitor of another, because every time you undertake that it is going to breed jealousy and stir up strife. Why, we have men up there who stand high in the society, who are running cartoons in our papers right along. It only costs them $20 to get it in. They are members of the McLean County Medical Society. It is not the young fellows who have to struggle for a place; it is the men that are already in the lead in the profession. You find the same thing almost everywhere. Now, we must stand up like men and say, "Well, that may be all right, but you cannot do it and be a member of the Illinois State Medical Society." I want to tell you that when these men feel that they are going to have to step out of organized medicine, that they will not be recognized by the American Medical Association, the Illinois State Medical Society, or their home society, they are going to think several times before they do these things. I may have organized medicine wonderfully magnified, but to my mind it means something to men and let us make it mean more.

Dr. D. D. Barr, Taylorville: In regard to some of the remarks that have just been made it seems to me that there ought to be a different condition of affairs in McLean than there is. In Christian county a little matter came up in the way of contract practice for the county. We have been having for a number of years in our society an agreement that no member of the association would take contract practice for the county. When there was any call for a county case the people might choose whatever physician they might wish and the county pay the same fee that physicians there are paid for ordinary visits or surgical operations. That went on swimmingly until unfortunately one of our members got in a graft proposition and stirred the county officials to a determination to have a contract. I am proud to say that there was not a single member of our county society that would take the contract. They finally persuaded a man who was not a member of our society to take the contract. His health gave way; he had to give it up, and one of our members in a spirit of generosity, as he seemed to think, thought he would help him out. That member was brought up before the next meeting of our medical society and given to understand that such would not be tolerated. He made his excuses, as they usually do, saying that he was told that there were others just ready to take it if he didn't and he thought he might as well have the money. We confronted him immediately with the fact that there was not a single member of our society who had agreed or would agree to take the contract practice. Before we were through with him, however, he gave his word of honor that he would not take or even help out anybody in contract practice after his present engagement was through. I believe he will stick to that proposition.

The point is if the county medical society wants to protect itself it can do it. I believe it would be better, as the doctor suggested, for the state society to lay down certain regulations, but in our society we take the matter into our own hands and take

action and we have accomplished, I believe, a good result. Doctors in our county understand that we will not stand for any such business as that. A little while before, the matter of cartoons came up. One of our doctors started to put a cartoon in the paper. He very suddenly had charges preferred against him, and the following meeting was the most interesting meeting our county society has had, with the fullest attendance. The cartoon has not been seen in the papers since and will not be seen. I think it is a good thing for the county society to have the determination to sit right down on any such action. We perhaps may not have everything perfect in our society. I know we have not; it is not nearly what I would like it to be. Our worst condition is the inability to get the members out and to get them to take part in the way of scientific programs, but we all have that difficulty, and we certainly have some qualities among our members that I admire.

Dr. H. D. Ryman, Mt. Pulaski: I have to make a living out of the practice of medicine; my ancestors failed to accumulate enough of the world's goods to make me independent of my mental and muscular activity; consequently, the economical or business side of medicine means a good deal to me. It does not mean any more to me than the scientific side, and no physician is or can be a true physician who is not deeply interested in the scentific side of medicine; but of necessity, if he is going to accomplish the most on the scientific side, he must pay particular attention to the business side of it, and he must to a certain extent forget that old teaching, that old code about the calling of the physician being one of a charitable or missionary nature. It is a nice thing, it is a beautiful thing to get up and talk about such ideals, but I cannot live on ideals; neither can you. The man who stays at home, who does not take a post-graduate course, who does not attend scientific meetings is getting the obstetrical cases that would come to me, is picking up the surgical cases that would be mine, while I am studying to fit myself to be a better physician. That man is getting the money; I am spending mine. I am getting my value, too. I enjoy it; it does not hurt me to spend it, and when I go back home I feel that I have not done wrong; I am going to go every time I can.

The president, Dr. Whalen, certainly had a very excellent paper and covered the ground very thoroughly, but the fees in the practice of medicine are something that the physician must necessarily think about and the secretaries' society always has more or less to do with it. The relations of the physicians with one another in the community and in the county is very much pleasanter if they can be gotten together frequently. Referring to Dr. Gilmore's remark that he found the best way to get them together was "to feed the brute," I think he learned that down in Marion county meetings at Dr. Rainey's lake. He was put under a tree with a table out in the open, a little lake nearby, in company with a good many physicians from that part of the state, some men from Chicago, St. Louis and other parts of the country. They all went away well filled in more ways than one. There is no two ways about it; you have got to get after the social side of the physician before you can get the spirit we want and need in our meetings.

Dr. Elizabeth Ball, Quincy: I have been intensely interested in every speaker and in every number on this program, but, with Dr. Cantrell, I feel that we should be considering what stand we will take, providing such a thing as a national insurance act is mentioned or suggested to us. I was abroad during the past summer and found a great deal of dissatisfaction among the physicians of the old country in regard to the insurance act. They are continually bringing up resolutions in their medical societies regarding the acceptance or nonacceptane of some of its rules. I think it is time that we were thinking about these things and getting ourselves prepared for the time when we, as the physicians of this country, will be called upon to face a similar proposition.

Dr. Gilmore suggested "feeding the brute" in order to increase the attendance at meetings. We have a luncheon at every regular session, our scientific programs are varied, sometimes given by men from other cities, sometimes by the members, yet it seems impossible to arouse some of our members and make them take an interest in their county society, so I should like to know of some new methods.

Dr. Charles J. Whalen, Chicago, closing: I have nothing further to say except to emphasize what the doctor at my right (Dr. Ball) has just brought out and what I did allude to rather strongly in my paper, viz., that the conditions that I told you about are here to stay and that you might just as well prepare to meet them. Conditions in this country will be just as bad in the course of five years as they are in England and Germany at the present time. The national insurance act will be extended to America and it will affect the physician here just as seriously as it is now affecting physicians of the old world. It is my belief—as I stated in the paper—that we are all confronted by state medicine; we are all to be put on the payroll of the state or municipality and at a not far distant date. What our compensation will be from the state is best illustrated by what municipalities and states are paying their physicians at the present time. For instance, the health department of the city of Chicago, I understand, for years paid its inspectors $66 a month, the inspector to furnish his own automobile, equipment and upkeep. This gives you a beautiful illustration of what we are coming to if we do not get together and take time by the forelock.

Dr. Charles W. Carter, Clinton, closing: The problems before the county medical societies appear to be very much the same all over the state. But from what we are hearing here today it appears also that the societies in the larger cities have to deal

with some very serious problems that are not known in the smaller societies. The DeWitt County Medical Society is small—only twenty-four members—and sometimes we think we do not amount to very much. But I want to tell you that we do not have one member that stoops to such depths in fee cutting as has been mentioned here today or that would accept family practice on any such beggarly terms as is reported from some of the city societies. And what is true of our little society I am very certain is true of the other rural societies. It makes me think that perhaps after all the rural society is the saving element in the field of medical practice. It may be that in the city our profession must look, as do other professions and other businesses, to the country for new life and new vigor, and stability and strength, and the little county society may, after all, be doing a very much greater work than we suspect.

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held February 17, 1914, with the president, Dr. Otto J. Stein, in the chair.

EXHIBITION OF CASE BY DR. SHAMBAUGH.

A little girl, aged eleven years, general physical condition well developed. Child apparently very alert mentally but presenting as a most marked physical characteristic a perfectly flat nose, of which there appears to be no elevation of the bridge and no cartilage formed in the septum. There is no defect in nasal respiration. The child was referred because of suspected adenoids, for which she had already had an operation. In neither parent is there any suspicion of lues, and in neither family are there any hereditary defects. The child present also, in addition to the facial defect, a good many mental deficiencies, about which Dr. Shambaugh requested her teacher to make a statement.

STATEMENT OF THE TEACHER.

The child first came under the teacher's care about nine months ago. The teacher discovered that she had had some previous instruction and was able to read on three or four pages very quickly, because she had committed these pages to memory, although she did not recognize a dozen isolated words. The process of teaching the child was very slow, yet in the course of the few months' instruction the child now knows about three hundred words, learned by the word and sentence method. As far as reading and spelling are concerned, she learns as quickly as a slightly subnormal child, but in mathematics she is very deficient and has not got beyond a realization of five. She writes fairly well for a child of five or six, although she is much older. Her mental development is perhaps five or six years behind. The teacher states that the child did not grow physically for four or five years; did not walk until she was four, nor talk until she was five or six. She has a rampant imagination and relates exaggerated stories, apparently thinking them true. One cannot rely at all upon statements which she makes. She has been well trained at home about her person, but associated with her in the school was a boy who had not been so trained, and when the girl learned what a commotion his neglect produced she began the same thing, but very quickly was brought to check this habit by restraining her from going out.

DISCUSSION.

Dr. J. Holinger said that the child presented by Dr. Shambaugh shows a number of characteristic features: The low nose, the nasal bones being hardly raised above the plane of the face, causing the tip of the nose to be tilted upward. The glabella is deep, which makes the eyebrows hardly project over the eyes. This, together with other features, drew attention to the thyroid. The part above both sternal ends of the clavicles appears sunken; you cannot feel any lobes of the thyroid. Over the trachea you hardly feel a trace of an isthmus of the gland. There is a deficiency of thyroid gland tissue.

Furthermore, there are a number of other symptoms in the case that point to defect of the thyroid. Early ossification of the base of the skull causes the very narrow antero-posterior diameter at the base of the skull and explains the deep position of the glabella. The sutures on the top of the head cannot be felt, though in a child of the age of this one you would expect to feel a distinct elevation. Furthermore, he referred to the peculiar dry and scaly condition of the skin. Another point that is often mentioned in this connection is the thickness of the lips. Around the mouth the myxedema is more pronounced, but it is noticed to some extent over the whole body. Another point is the condition of the little girl's hair. It is coarse, sparse and very dry.

Dr. Holinger thought it certainly would be advisable to start in with systematic medication with thyroid gland and watch the result. These experiments, especially in children, have been made very extensively in Switzerland. The speaker followed up the literature of those experiments very closely, and would be very much mistaken if some result did not follow in this case if systematic medication with desiccated thyroid gland were instituted.

Dr. George W. Boot thought the case is undoubtedly one that has some connection with perversion of the function of the thyroid gland. The tongue is large, and protrudes from the mouth a good deal of the time, which is a quite characteristic condition; also the dry, harsh skin. But the child lacks many of the other symptoms of cretinism. He has never seen a cretin so active as this child; they are usually dull and slow. He has had under observation for a number of years an adult with the same characteristics of face that this little girl has, namely, a deficiency of the nose, and the same enlargement around the mouth and tongue. The woman has been a very bright

woman, with nothing strange about her until some five or six years ago, when she had some disturbance in the circulation of the brain, apparently a thrombosis of some of the smaller vessels, and since then she has become a typical paranoiac.

Dr. George M. McBean presented a paper:

VARIATIONS OF SPHENOID SINUS DISEASE.

The essayist said that in studying the atypical forms of sphenoid sinus disease, we must take into consideration the relations of the sinus to the brain and meninges, to the hypophysis cerebri, to the cavernous sinus and internal carotid artery, to the cranial nerves, to the other nasal sinuses and to the nasopharynx. These structures may become associated with the sphenoid in a morbid process due to (a) extension of infection; (b) to exposure by necrosis of its bony wall from chronic suppuration; (c) to invasion of the sinus from the cranial cavity, for instance by pituitary tumors! (d) to irritation or paralysis of the optic, motor oculi or trigeminus nerves or the carotid plexus; (e) to association with the ethmoid in acute and chronic infections, polypi, atrophic rhinitis and athropic pharyngitis.

Dr. McBean then cited nine cases in detail, giving the following resumé: First, he believes that sphenoidal disease is much more common than was formerly supposed. This list of nine cases in six years' time in his own practice convinces him of its frequency. With more careful post-nasal examinations, especially with the naso-pharyngoscope, many such cases will be found. With the routine use of the probe and catheter more cases will be recognized. The sphenoid is the easiest of all nasal sinuses to catheterize, as a rule.

Headache was the most constant symptom in his cases. Most often it was occipital and back of the corresponding eye. Twice it was frontal (once in a brain abscess case). Pain was absent in an atrophic case. A pituitary case had a pain, "dull and boring, sometimes bursting, in the middle of the head." The typical pain in the occiput is very similar to that of eye-strain produced by ocular hypophoria, and must be differentiated by exclusion.

The eye symptoms were variable or lacking. In some cases difficulty in using the eyes for near work was experienced. In one case there was inequality of the pupils. There was loss of vision in only one case, that of a tumor of the hypophysis, from involvement of the optic nerve. Polypi were abundant in two old multiple sinus cases.

Three of the nine cases terminated in death; two acute cases recovered; three were operated on with benefit or cure, and one case had no treatment.

DISCUSSION.

Dr. L. W. Dean said he had intended to bring a specimen that was of great interest to him—a post-mortem specimen. The patient came into the department of internal medicine in the University Hospital a short time ago with a septic temperature, and the blood findings those of general sepsis. In addition to these findings, the only symptoms which the patient presented were a slight exophthalmos on the right side, and a marked papillitis of the right nerve-head. The patient was sent down to Dr. Dean's department for examination, and an extensive pansinusitis was found, and a diagnosis made of cavernous sinus phlebitis, probably secondary to the sinusitis. In a few days the patient was so ill that it was impossible to continue the examination of the case, and he died a few days later. Post-mortem examination showed a condition of pansinusitis. In the right sphenoid there was an abundance of polypi. There was a dehiscence of bone between the sphenoidal and cavernous sinus.

Another thing occurred to him in connection with the discussion of sphenoidal sinusitis. Many patients come complaining of headaches at the base of the brain. If we talk to these patients we always find that they do not complain of headache at the base of the brain—it is either back of the eye, or occipital, or frontal, or on the top of the head, but they never localize it right at the base of the brain. It seemed to the speaker that if the patient had anything at all that would cause a headache at the base of the brain, it would be from trouble in the sphenoidal sinus. Nevertheless, experience has shown that these patients when they have a headache the result of sphenoidal sinus infection have a frontal headache, a pain back of the eye, or an occipital or temporal headache. The pain is characteristic in that it comes and goes, is a real pain and is much worse in damp weather than in dry.

Dr. George E. Shambaugh recalled a few of these unusual sphenoid sinus cases. The more usual ones, where the infection of the sphenoid is found associated with multiple accessory sinus disease, either acutee or chronic, are by no means uncommon. Of the unusual cases he recalled a woman of perhaps fifty, who was brought to him because of long-standing, severe, unbearable headaches, which she located in the occiput. She suffered from a dry pharyngitis, but no pronounced nasal symptoms. Both nasal passages were found practically normal, with the exception of the recessus spheno-ethmoidalis on the left side, where by inspection one could detect the formation of small crusts. Under cocaine the middle turbinate was removed and the anterior wall of the sphenoid sinus was broken away. A large amount of thick, almost dry, offensive secretion was removed. The patient made a good recovery and has had no trouble since, after a period of two or three years.

Another unsual case reminded him somewhat of the case of hemorrhage reported by the essayist. This was the case of a man, about thirty years of age, who had for several years suffered from very severe headache, for which he had consulted a local physician in the country who had found a slight deflection of the septum and had convinced himself that this was the probable source of the headache. The physician attempted to operate on the septum, but severe bleeding scared him away. Later, because of severe

headache, the patient attempted to commit suicide. With a shotgun he blew off his chin. Later he had bone transplanted in the chin, and at that time had the septum of the nose straightened. Ever since the first attempt to operate on the nose the patient had at intervals suffered from very severe nasal hemorrhages. The man was brought to the hospital in a very much weakened condition, and the first glance gave one the impression of a man suffering from the cachexia associated with malignant disease. In examining the nose one could recognize in the region of the recessus spheno-ethmoidalis a little pulsating mass, which the speaker diagnosed as a probable malignant growth. There were no eye symptoms. After a few days the patient died, following a hemorrhage. At post-mortem an extensive disease was found, involving the sphenoid and posterior ethmoid region. The roof of the sphenoid had been eaten away and the hemorrhages had apparently come from the internal carotid. The condition was one of sarcoma.

Another unusual sphenoid sinus case occurred in a woman, aged about forty, whose chief complaint was dryness in the pharynx. The patient presented a typical condition of atrophic rhinitis, with crust formation restricted to an area about the opening of the sphenoid. The shrinking of the middle turbinate was such that one could, without cocaine, look directly into the sphenoid sinus. A small amount of pus was coming from this sinus.

Dr. C. M. Robertson said it was hard to distinguish which variations belong especially to the sphenoid and which to the ethmoid sinus. He had observed four cases of a condition which he has not seen described, in which there was bilateral sphenoidal empyema, with bony atresia in the nostrils, which consisted of a solid isthmus of bone between the middle turbinal and the septum. In two cases there was just room over the atresia to pass a probe, and perhaps three or four millimeters of an opening along the floor of the nostril. In the other two the atresia was less in extent.

The first case was diagnosed as a tumor of the brain—the young woman was almost demented. She was in delirium, had hallucinations, and it was feared she would have to be placed in confinement. She had optic neuritis. No papillitis, but there was an optic atrophy in each eye, more pronounced in the right eye, vision being 22/200 in this eye, while in the other it was 20/120 or 20/160—he had forgotten exactly. There was a lack of taste and smell, and she had an angioneurosis in the throat which was very troublesome. One side of the throat would swell up to an enormous size, almost suffocating her, with a bronchial cough and terrific, bursting headache. Dr. Robertson cleaned out both sides of the nose, made her a new nostril, opened up both sphenoids and found purulent material present in both sphenoid cavities as well as post-ethmoidal cells. This case was rather remarkable, because the atrophy in each eye cleared up, so that the optic nerve became pink, the vessels became normal in size, and the vision came up to 20/20, with a cessation of all of the other symptoms.

The second case was that of a business man, who commenced to have spells that were unfitting him for business. He had false epileptic spells. He would feel absolutely normal, and all of a sudden he would go away, and after a few moments waken up and find people looking at him. He had optic nerve irritation—not so marked as in the first case—but enough so that his acuity of vision was down to one-half normal. He had had these spells on an average of one in twenty-eight days for four or five years. He had a heterophoria, which was treated with prisms, for eight or ten years. He had had muscle operations and muscle exercises with prisms, so that he was an educated eye subject. When the speaker examined him he found a bony atresia, almost similar to the preceding case. After operating upon the nostrils and correcting the atresia, the sphenoids were opened through the maxillary sinuses, which was the shortest route. Finding the maxillary sinus and the posterior ethmoid cells quite hard, he went into the sphenoid, where he found a large accumulation of yellowish, gluey material. From the antrum he went into the sphenoid and from the nose into the sphenoid, then removing the partition between the two routes. About the second or third time he presented himself post-operative he took away a piece of bone about as large as a thumb-nail, and the netx time the patient presented himself Dr. Robertson saw a tumor mass extending down into the nose, that looked the size of a normal middle turbinate, occupying about the position of a normal middle turbinate. The mass was movable, and so the speaker snared it off. It was sent to he laboratory and found to be a pituitary cyst. This man was relieved of his symptoms, and up to the present time has been absoltuely well.

The third case was one which he was called in to see in consultation. A man who was unconscious, had a very high temperature, with delirium. His eyes were rolling around so that they could not be examined. However, there was a very peculiar odor noticed. On looking into his mouth, Dr. Robertson saw the nasty, brownish, glairy mucus referred to against the posterior pharyngeal wall, and on account of that made a diagnosis of sphenoidal abscess, probably with a brain abscess behind. He was taken to the hospital and operated on the next morning. As the sphenoid was entered a lot of this nasty, sticky fluid came out, and then the curet dropped into the cranial cavity for an inch and a half. All of a sudden there was a gush of blood and chunks of pus. The patient was turned over quickly on his abdomen. In a minute or two the blood stopped and packing was placed quickly. The temperature the next morning was down from 104.5° to 100° or 101°, and the patient was rational. Before this he was absolutely unconscious. The patient died in five or six days. He had a sphenoid abscess that had perforated posteriorly, and had an extradural abscess on the pos-

terior surface of the sphenoid bone. Bony atresia was less extensive than in the former cases.

The fourth case was a similar one to that recited by Dr. McBean, in which the presenting tumor mass was a sarcoma. Those are especially the cases where the discharge is of that peculiar brownish material that is always found in sphenoidal abscesses, even if seen away down by the soft palate, usually associated with necrosis of the bone. They are the worst cases with which we come in contact. This discharge is of the same character as that we get in necrosis of the ear, in those cases where we have nasty, fetid, thin, watery discharges following necrosis.

It seems to him that sphenoid abscess cases are very, very frequent, and it has always struck him that, as the pituitary body lies just above the sphenoid, all these cases of hyper-pituitarism must necessarily at first be from an irritation by an inflammatory product in the sphenoid sinus itself. In many cases of hypo- and hyper-pituitarism we can bring it right down to the sphenoid cells.

Dr. McBean, in closing, said he was very much interested in what Dr. Robertson had said about the dark brown mucus that he finds. The speaker has never found it in his cases, and hopes he never will, if his cases are going to be as serious as those reported by Dr. Robertson. His own cases have been bad enough, but not like that.

He was also interested in what Dr. Robertson had said about the pituitary disease often being from the sphenoid. In one case he had reported—that of the girl with the unequal pupils—he was sure that her amenorrhea which continued some months after that, was not due to anything else, but must have been due to the irritation in the sphenoid, and change of circulation in the hypophysis itself. He did not think, however, he could say that all the pituitary cases are due to that, though he is sure this one was.

Dr. Shambaugh's cases also were extremely interesting. He thinks that most of the dry pharynx cases are due either to disease of the posterior ethmoid or sphenoid.

Dr. David J. Davis presented a paper:

THE ACTINOMYCES-LIKE GRANULES IN TONSILS.

The essayist said that the actinomyces-like granules are commonly found in the crypts of the tonsils. They are in no way related to the true actinomyces. These granules always consist of bacilli, cocci, and spirilla. The bacilli, which were successfully cultivated, belong to the fusiform bacillus group. They are strict anaerobes. They alone are not pathogenic for animals.

The entire granule, when injected into rabbits and rats, readily produces abscesses.

The writer has not been able to find a well-authenticated case of actinomycosis of the tonsils in the literature. It is not meant by this that they do not exist, but if they do they are probably very rare.

These granules are of interest from a practical standpoint, for the following reasons: They are responsible very largely for the odor of masses derived from the crypts; hence are concerned with the condition of foul breaths. They form a neucleus for the deposition of lime salts, thus being responsible often for the formation of tonsil stones. They often plug the crypts, thereby preventing proper drainage. There are always in these granules streptococci, which may be pathogenic and which may possibly play a rôle in chronic streptococcic tonsillitis.

DISCUSSION.

Dr. George E. Shambaugh considered Dr. Davis' work on the pathology of the tonsils very valuable and a contribution of great interest, especially to those working clinically with diseased tonsils. He has always been astonished in reading the reports of the finding of actinomycoses in the tonsils that these cases presented no clinical symptoms by which this disease could be recognized. Dr. Davis' work clears up the situation by showing that these are not cases of actinomycoses at all. Dr. Shambaugh does not know as yet just what importance to attach to these cheesy plugs so frequently seen in tonsils. They are composed of different sorts of material and often are present without apparently causing any symptoms. In other cases they do give rise frequently to distinct symptoms, such as a circumscribed congestion and soreness in the region of such a plug. There is usually a very offensive odor, of which the patient is often conscious. Apparently there is a certain systemic intoxication produced in some of these cases, possibly because the presence of these plugs favors the development of bacteria at the bottom of the crypts. Very often, too, these patients who have trouble with cheesy accumulations in the tonsils suffer from a great many attacks of acute tonsillitis, which are not only a nuisance, but often a serious menace.

Dr. Otto J. Stein was attracted by this subject quite a few years ago, when the question of tuberculosis of the tonsil was so enthusiastically talked about, with invasion of the deeper structure of the neck. He was frequently astonished by the report in these removed tonsils of the finding of these actinomyces-like granules or mycelial-like bodies in apparently not badly diseased tonsils. In fact, they were found in the tonsils removed from children quite frequently, and at first it was thought that some great discoverey had been made, some early sign of the disease of actinomycosis. However, in speaking with Professor Zeit, who examined most of these cases for him at that time, he told the speaker that he placed no importance whatever upon them, and that they were very commonly found in the plugs of cheesy material that were found in the crypts of the tonsils. He expressed at that time and also several times since the belief that these granules might be entirely disregarded. There was another type, however, the true arrangement of the granules, that was associated with this disease, actinomycosis, but in almost all of these cases—in fact, every case—

he had found the clinincal findings of disease in the neck or tissues surrounding. The speaker had found a case that he believed to be a true case of actinomycosis of the neck, with the ray findings in the tonsil. The case was referred to him as one very like actinomycosis, and he was asked to remove the tonsils. He is now of the opinion that the arrangement of these granules in the ordinary tonsil, unassociated with any clinical manifestations of the disease itself—actinomycosis—means nothing at all, quite contrary to what Dr. Shambaugh had just expressed.

Dr. C. M. Robertson asked Dr. Davis if he, in his exainamtions, differentiated between the crypts of the tonsils in which these masses or granules were found, and also if there were any gland involvement in the cases in which they were found, or not?

Dr. J. R. Fletcher asked the members if they remembered when Dr. Grosvenor was here he made an investigation of quite a number of tonsils and spoke of the relative frequency with which actinomycosis was found in those which he had sectioned? The speaker mentioned this because a year or two ago he removed the tonsils from a Sister of Mercy, who was sent to him supposed to have suffered from tuberculosis of the right lung. Dr. Zeit examined a section of the tonsil and he said it was not tuberculosis, but remarked that he had seen all of the Grosvenor preparations, and this one was the most beautiful case of actinomycosis that he had ever seen. He unqualifiedly pronounced it actinomycosis. This patient has gone on for quite a number of years and seems to remain in about the same condition, so far as the tuberculosis of the lung is concerned. Dr. Zeit said that probobaly she had actinomycosis of the lung also. She had no glandular involvement of the neck that the speaker was able to find. He asked for some expression of opinion from the members.

Dr. Stein asked if Dr. Zeit called it a true case, to which Dr. Fletcher answered yes. He had removed the tonsils by request, as they were manifestly diseased, and the attending physician was fearful that the tonsils might have something to do with the disease in the lung, and that she might, perchance, have a better opportunity to recover if the tonsils were removed.

Dr. Otto J. Stein said that Professor Zeit had no doubt found several "most beautiful" cases, because the speaker claimed the distinction of having the "most beautiful" case of actinomycosis, according to Professor Zeit.

Dr. Otis H. Maclay said that it is well to consider the simple things in tonsil cases, which are sometimes overlooked, namely, the odor and the feeling of fullness in the tonsil. These patients often complain of a feeling as though there were a stick in the tonsil, and there is often a cough associated with the condition, where there is nothing much the matter with the patient—no pain or soreness. When the tonsils are cleaned out, the cough, with the other symptoms, disappers.

Dr. George W. Boot asked Dr. Davis regarding the bacilli growing in the form of a brush. Was this not an unsual form of growth for bacilli? Just what did Dr. Davis considers the relation between these organisms and the organisms of Vincent's angina?

Dr. Davis, in closing, answering Dr. Robertson's question, said that in these cases where such granules are found in the tonsils, there are no grandular enlargement. It should be remembered that they are found in practically one-third of all adults. He imagined that if he were to examine the tonsillar crypts of every individual in the room he would find them in about thirty per cent. He has found them repeatedly in his own tonsils, and has commonly found them in the crypts of normal individuals. There is, therefore, little or no reason to suspect that there is any diseased condition when one finds them in tonsils.

With reference to the relation between the bacilli and the filaments, it should be stated that the central stalk is made up of the fusiform bacilli growing in long filaments, just as they often do in artificial culture. A bundle of threads may grow out and at or near the ends, probably where the conditions of growth are somewhat different, the bacilli there grow somewhat shorter, and arrange themselves perpendicularly to this central stalk.

So far as their relation to the organism of Vincent's angina is concerned, he could not state that they are absolutely identical. However, he had no doubt but that they belong to that group. There are some slight differences between certain strains of this group, so far as their appearance on culture media, reactions, and so forth, are concerned, just as there are differences between various strains of the streptococcus or typhoid groups. The fact that they are always associated with the spirilla is another point in favor of the idea that they belong to the fusiform group; for we know that the organism of Vincent's angina is nearly always associated with spirochetae that exactly correspond with the spirochetae found in these granules.

Dr. Davis is particularly interested in the question of the relation or, rather, non-relation of these bodies to actinomycosis. He did not wish to criticise Professor Zeit, or anybody else, so far as this particular point is concerned. If anyone has any definite cases of actinomycosis of the tonsil, these cases should be reported, because there is not a single well-authenticated report of such in the literature today. He did not deny that actinomycosis might enter into the tissues through the crypts of the tonsils. He rather thought that they might, because the crypts would be a pretty good place for them to grow, and from there penetrate the tissues; but as a matter of fact, there is no clear-cut evidence of that at the present time.

Furthermore, if anyone had such a case, he should not be content with simply examining sections of the tonsils. No absolutely reliable statement could be made from such examination. The organisms must be cultured and the final proof will rest upon the re-

sult. Any evidence that is convincing must be of that character.

Dr. E. Fletcher Ingals and Dr. Stanton A. Friedberg presented a paper:

FLUOROSCOPIC BRONCHOSCOPY.

Three cases of foreign body removed from the bronchi were reported. The first case was that of a nail in a tertiary division of the left trunk bronchus. The second case was a band of gold that was a part of a crown for a tooth, which had lodged in the upper bronchus of the right lung. It had been present for several years; under local anesthesia it was removed with the aid of the fluoroscope. A third case, that of a boy, aged nine, with a brass bolt present in a cavity of the lower lobe of the left lung for about two and a half years, was also reported. This also was removed under local anesthesia.

A special forceps was used in these cases. It consists of a Krause handle with a simple tube forcep. Its main characteristic is that it is strong and of small diameter and the grasping surface of the blades is cut like a file, with the cutting edge towards the handle.

Special importance is laid upon the necessity of being sure that the end of the forceps is in the same bronchus as the foreign body. When the forceps has been passed down so that its shadow reaches the shadow of the foreign body, the end of the instrument should be moved back and forth laterally to determine whether or not it is in the same bronchus or cavity as the foreign body. If it is in a different tube the shadow of the forceps will pass away from that of the foreign body, but if in the same bronchus, the shadow of the foreign body will move with that of the instrument.

DISCUSSION.

Dr. Otto J. Stein said there was no doubt that the reports of Drs. Ingals and Friedberg showed a distinct advance in the technique of removal of foreign bodies in the esophagus or bronchi. He has had very little experience in this line of work, and could only report two failures. But he believes that the aid of the fluoroscope, if worked out, with proper team work, will eventually lead to the working-up of a special technique that will facilitate removal of these foreign bodies. In one case in which he attempted to use the fluoroscope, a very small child of about eighteen or twenty months, a very fat child, the foreign body (a pool check, round with a square hole in the center) was never found, or, rather, recovered. It could be seen distinctly with the fluoroscope. An attempt to remove it with the ordinary instruments failed entirely, owing probably to the inflammatory exudates that existed around the foreign body, on account of the manipulation that had been done the day before, continuing for some three hours. By the use of the fluoroscope, the foreign body could be seen distinctly, but just at the moment when the speaker tried to use the fluoroscope and instruments together the child developed a violent convulsion. Temperature was 104.5°, and the convulsion was so violent that he had to desist. A little later the child died.

In another case he attempted to use the fluoroscope, but was again handicapped by very ineffiecient help. The nurse knew nothing about the work, and there was nobody else at hand, but in this case he believed that if he had had the proper help he would have succeeded in getting the foreign body out, but as it was, he failed again.

Dr. Ingals, in closing the discussion on his part, only wished to urge again that the forceps should be moved laterally and that the operator be sure the foreign body goes with it. If it does not, one is liable to catch the lung tissue. If the foreign body goes with the instrument, it must be in the same tube, and then with care the chances are that the foreign body can be removed. If you have the right kind of a corceps and gets hold of the foreign body, never let go, unless you happen to get hold of the center of a screw, as was the case in one of the cases reported by Dr. Friedberg.

Dr. Friedberg, in closing the discussion, referred to the necessity of an earlier diagnosis in cases of foreign bodies in the lung. It hardly seems reasonable to wait two years to diagnose a metal substance in the lung. In Dr. Ingal's case the foreign body had been in for three years, and in his own case for over two years. The speaker had a somewhat similar case during the past summer, where a tooth had been aspirated and had been present for almost five months, and a small abscess cavity had formed. A picture of the chest revealed the shadow of a tooth. So, in all obscure lung conditions, where the history is indefinite, a fluoroscopic examination should be made. The earlier these cases are discovered, the less changes of a permanent character are found in the lungs, and the chances of a successful operation are increased.

Dr. Stein asked if it was possible to discover an aluminum foreign body by this method.

Dr. Ingals said aluminum would show if it was very heavy, but light aluminum would not show.

Dr. Stein said the reason he asked was because recently he had a case of an aluminum band, two and a half inches long, folded up, that did not show in many x-ray pictures. The fluoroscope was never used, and he was wondering if it would have shown this band.

Dr. Ingals said he had had a case of an aluminum pin in the esophagus. He used the fluoroscope. At first he was satisfied that there was nothing there, but finally he saw the pin.

Dr. Friedberg had seen a case of an aluminum tracheotomy tube jammed down in the bronchus, which did not show.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held March 16, 1914, with the President, Dr. Wesley Hamilton Peck, in the chair.

AN ANOMALOUS NERVE HEAD WITH GOOD VISION.

Dr. Michael Goldenburg exhibited a case concerning which he read a paper at the February meeting on the above subject.

GLAUCOMA AS AN ETIOLOGICAL FACTOR IN INSANITY.

Dr. Carl B. Welton, Peoria, reported the case of Mrs. J. W., aged 69, who was admitted to the Peoria State Hospital for the Insance, December 9, 1912. At the time of her commitment the insanity had been present four months. Her history showed there was no insanity in her immediate family, nor in the family of either parent. She never had any disease of the eyes, and her vision had always been good until September, 1911, when she developed an eye trouble in which the eyes became painful, ınsitive to light, and her vision began to fail. This condition of the eyes grew worse until three or four months later; the pain in the eye became so severe that she had to be given opiates continually to relieve her. In April, 1913, when the author first saw the patient, she had recovered her mental faculties to a degree, so that she could carry on a fairly intelligent conversation and could clearly tell the conditions and circumstances of her past life up to the time that she began the use of drugs. She complained of continual pain in the eyes. Examination of the eyes disclosed the typical picture of an absolute glaucoma. Both eyes were injected and painful to the touch. The corneal reflex in each eye was dulled. The cornea was somewhat opaque and its sensitiveness lost, the whole eye being in a state of glaucomatous degeneration. The globes were ectatic, the pigment epithelium of the retina was visible in several places through the thinned and bluish sclera. The anterior chamber was obliterated. The pupils were dilated, unequal in size, the pupillary margins irregular and neither reacted to light nor accommodation. The lenses were partially opaque and no reflex could be obtained from either fundus. The tension taken with the Shiotz tonometer measured in the right eye 70 mm. Hg., that of the left 75 mm. Hg.

An operation was advised to relieve the pain caused by the increased ocular pressure. On May 19, 1913, under ether anesthesia an Elliott trephining of the sclera was performed on each eye. The sclera, which was extremely thinned, was easily pierced by the trephine, the piece removed and a small buttonhole iridectomy made. A prompt recovery followed.

On December 23, 1913, the patient was again examined, and there was no injection of the eyes and no pain or tenderness present in either. The tension was again taken with the tonometer and registered in the right 13 mm. Hg., and in the left eye 55 mm. Hg. Why the patient did not have pain and tenderness in the left eye, which still registered 55, was, he believed, due to the highly atrophic condition of the eye from the long continued high tension. At least, with this tension still remaining after the operation she had no discomfort nor complaint, and the advisability of a secondary operation was not considered.

Cases of this kind simply showed the necessity of educational work being done by oculists among the men engaged in general practice for the purpose of promoting the earlier recognition of symptoms indicative of a grave eye disease. When a physician was called to see a patient who was having pain in the eyes or in whom the vision was rapidly failing, it became at once his duty to know by means of competent help whether or not he had to deal with a serious disease of the eye.

DISCUSSION.

Dr. L. W. Dean, Iowa City, Iowa, said he had had four rather disagreeable experiences. The first, a patient with frontal sinus trouble, was operated on but no mental disturbance noticed at the time of operation. One morning she was found dead in her room. She had taken a scarf, tied it around her neck, fastened it to a hook on the wall, held her knees up from the floor, and hanged herself in that way.

The second case of insanity was one following operation for strabismus. The patient came to have his eyes straightened before getting married. The second day followed the strabismus operation he became maniacal. He made several attempts to take his life. It was necessary to place him in a straight jacket. He was seen by Dr. Witte, who expressed the opinion that he might become insane at any time. He became insane. The worry of getting married, together with the disturbance of bandaging the eyes following a strabismus operation, also advancement with tenotomy, resulted in his becoming mentally unbalanced.

The third case was a woman who complained of terrific pain in the head and had severe spasm of accommodation. She came from a very fine family. Her surroundings were perfect. She came to Iowa City, was ill at the time, and was placed in a hospital. He did not notice anything wrong with the woman nor did the sister. She went into the bathroom one day, and as one of the sisters did not hear any sounds she peeped over the transom and saw that the woman was trying to drown herself in the bath tub. She was unconscious, but was resuscitated. He was sent for and in consultation with Dr. Hill it was found that the woman was insane.

A fourth case was in the hospital at the present time. She had terrific pain in the head and was committed to the insane hospital. Before she was sent, at the request of the husband Dr. Dean examined her and found that she had neuritic atrophy of the nerve on the side of the mastoid lesion, and before operating he made a diagnosis of extra-dural or brain abscess secondary to mastoid disease of long standing. At the operation he found a very large tempero-sphenoidal abscess. He evacuated fully an ounce and a half of

pus. This relieved the pain. The operation was done six weeks ago and the woman will be sent to the asylum within a week. He received a requisition from Dr. Witte the other day stating that this woman was a typical case of melancholia; that the attack was brought about by infection of the cerebral substance, although the infection could not be considered in any sense of the word as the cause of her insanity. It was simply a contributory factor.

THE FUSION FACULTY AS A TYPE OF FACULTY.

Dr. M. Z. Albro stated that

1. With few exceptions, the fusion faculty developed naturally if it was not interfered with. In the same way we saw the development of the coordinated use of the hands, or of the lower extremities, as in walking, or of the vocal apparatus in the beginning of speech.

2. In a few individuals the fusion faculty does not appear, and cannot be induced to appear by any present known means, even when no obstacle to its development existed. The result was the same as though some nervous structure essential to fusion had failed embryologically.

3. The fusion faculty may appear in early life, but its development might be interfered with by the presence of refractive errors, such as hypermetropia, myopia, anismetropia, astigmatism, by scars of the cornea, by malformations, muscular, ligamentous or bony, or by the results of traumatism or inflammation. When so interfered with, this faculty became latent.

4. When the fusion faculty became latent its potentiality progressively diminished to the vanishing point.

5. Up to a certain age, the latency of the fusion faculty might be overcome, its potential aroused and developed to a practical working force that would then remain permanently established through life.

6. In the secondary development of fusion, the quantitive developmest varied in individuals, and this variation was strongly modified by variation in individuals in the ability to fix the attention, by the intensity of effort applied, by the degree to which systematic use of time, effort and apparatus could be maintained.

7. Under normal conditions, the fusion faculty reached a working quantitative development early in life, after which it was permanent, and could be disturbed only by influences amounting to violence, either general or local.

8. The amount of power, force, or ability to perform fusion normally developed, varied in different individuals, from zero to sixty degrees, as measured by the amblyoscope. When the total fusion ability amounted to sixty degrees, a part of it was voluntary.

9. The fusion faculty might be voluntarily suspended. The ophthalmologist suspended fusion when he used the ophthalmoscope or retinoscope; the microscopist when using the microscope, and the expert rifleman when sighting his rifle. This might be called a negative phase of fusion. There was such a thing as true voluntary fusion.

10. Fusion was intimately associated with accommodation and convergence.

11. Distinctly separated areas of the cell structures of the brain must cooperate in the performance of the fusion faculty; therefore, associative fibres connecting these areas must be likewise concerned. Possibly congenital lack or failure of development of certain neurons might account for its occasional omission.

12. We might infer that education did not consist in the training of the eye alone, nor of the ear or hand. Neither did it consist of the accumulation of facts or aggregations of facts, but lay in the development of control faculties, associative faculties.

DISCUSSION.

Dr. J. F. Burkholder, in speaking on the neurology of the fusion faculty, presented a series of twenty-one lantern slides and an hypothesis, as to the localization of the fusion faculty.

The faculty must, of course, be considered as a complicated arrangement of purposeful reflexes, made up of single elementary components with receptors, conductors and effectors; the effectors are the muscles for the orientation of the eye balls.

In considering the neuron tracts from the retina to the extrinsic muscles of the eye, the first locality where a series of possible physiologic associations might take place is the optic chiasma; but in view of the heterogeneous connections that the chiasma makes with irrelative parts of the encephalon, no such purposeful function as the fusion faculty could possibly take place. The constructions and associations of the chiasma were then briefly given as follows:

1. The inter-retinal fibers, called the commissura arcuata of Hannover.

2. The fasciculus cruciatus, or crossed bundle of the ophthalmologists.

3. The fasciculus noncruciatus, or uncrossed bundle.

4. The commissura superior of Meynert, from the nucleus lenticularis to the opposite subthalmic nucleus of Luys.

5. Hemispheric bundle of Gudden, from the tract to the hemisphere.

6. Commissura ansata, from the lamina terminalis, to the opposite optic nerve.

7. The commissura hypothilmica, connecting the two subthalmic regions.

8. The tractus peduncularis transversus, called also the habenulo-peduncular tract, connecting the interpeduncular ganglion with the habenular nucleus.

9. The commissura inferior of Gudden, connecting the two inferior quadrigeminal bodies via the chiasma.

It is self-evident from this variegated assortment of associations that a theory accounting for any coordinating activities would be hard to formulate and still more difficult to defend.

After leaving the chiasma, the next place of importance that must be carefully considered is the colliculus superior, or the anterior pair of the corpora quadrigemina. A series of illustrations showing the evolution of these bodies from the lampry eel to the pigeon were presented. The development in complexity of the structure of these bodies as the environment of the organism increases in extent, is simply for one purpose, and that is to bring the organism in correspondence with the increased environment. In so low an animal as the lampry eel you will find an eye and a musculature for the orientation of that eye. In addition you find in the brain a large body, called the optic lobe, to which the optic nerve can be easily traced. In these lower animals there is no cerebral differentiation to receive and interpret impressions of light, so that the perceptions of light as well as the coordinating of the muscles of orientation must take place in these bodies. The histologic structure of the anterior pair clearly indicate that they have very complicated functions to perform. Winkler and Potter give the following strateae as obtaining in the rabbit's colliculi superiores:

1. Stratum zonate.
2. Stratum griseum superficiale (small cells).
3. Stratum griseum superficiale (large cells).
4. Stratum medullares superficiale (optic radiation).
5. Stratum griseum intermedium.
6. Stratum medullara intermedium (lateral lemniscus).
7. Stratum griseum profundum.
8. Stratum medullare profundum (fountain decussation of Meynert).
9. Stratum substantia grised centralis.

As soon as the geniculate bodies and the occipital cortex begin to develop these quadrigeminal bodies rapidly become smaller and less complex; some of their functions being shifted further back to the cortex.

The same laminated arrangement of structure obtains in the occipital cortex, as is clearly shown by stained sections.

The anterior pair of the corpora quadrigemina are very important bodies, and the integrative activities of the twelve extrinsic muscles of the eyeballs are unquestionably regulated through this optical substation. The coarse adjustment of the eye muscles is regulated by this organ, as it were, while the fine adjustment is effected by the fusion centers located in the occipital cortex.

So long as the animals had only monocular, single vision as in the fishes, amphibians and birds, the coarse adjustments effected by the optic lobes (the anterior pair of the corpora quadrigemina of the higher vertebrates) was sufficient for all purposes; but as soon as the two eyes moved around to the front and binocular single vision became a necessity, a finer orientation or adjustment became imperative. These finer adjustments must of necessity lie in close proximity to the organ of visual sensations and were, as a consequence, also shifted to the occipital lobe. The very wide and important associations of the colliculi superiores is evident when we consider their remarkable anatomical connections, which might be enumerated as follows:

1. With the retinae by means of the optic tracts.
2. With the occipital lobes by way of the optic radiation.
3. With the mid-brain by means of the fountain decussation of Meynert and posterior longitudinal bundle, thence by means of collaterals to the 3rd, 4th and 6th nerves.
4. With the spinal cord by the fasciculus ventrolateralis profundis.
5. With the lateral lemniscus, via the colliculus inferior, thus bringing the visual apparatus into the association with the cochlear nuclei and superior olivae.

Phylogenetically the anterior pair of the corpora quadregemina come first, then the lateral geniculate body, and lastly the occipital cortex, and as soon as the two latter structures became active, the corpora quad lost its prerogative as a visual center and retained its coarse reflex functions only. The colliculi, however, retain a remarkably intimate association with the occipital cortex by means of the optic radiation, and this association between the colliculi ad the occipital cortex is of the most intimate character. In this radiation we have both corticifugal and corticipetal fibers, so that the associative activities can be regulated with great precision. This intimate association of the perceptual and reflex mechanisms becomes a necessity when we remember the extreme exactitude in adjustment, that the fusion faculty demands. There are two distinct subdivisions in the optic radiation, and one of these is distinctly myelinized at birth and forms what Flechsig calls the optic radiation in the narrower sense; this tract Monakow claims brings the macula in direct association with the cells in the walls of the calcarine fissure via the external geniculated body.

In the occipital cortex you have the same laminated arrangement of its constituent elements as is found in the retina and the colliculi, as already noted. The occipital cortex, however, has more layers than any of the other cortical areas, showing that there is more complexity as to function; this is further emphasized by a distinct separation of the occipital cortex into two clearly defined subdivisions, by the line of Gennari or Vic d'Azyr. It is our impression that these separate subdivisions of the occipital cortex have distinct and separate functions to perform, and we would suggest that one of these has to do with the visual faculty and the other with the fusion faculty. This becomes all the more apparent when we consider the intimate association made possible between the cortex of the two occipital lobes by means of the posterior fibers of the corpus callosum forming what anatomists call the splenium, making the hypothesis that there is a fusion center or faculty in each occipital lobe, associated by means

of the corpus callosum, a working hypothesis based upon demonstrable anatomic conditions.

DIPLOIC ABSCESS.

Dr. George F. Suker said that about a year ago he presented the same patient whom he operated on for what he called a diploic abscess, due to diploic hemorrhages. The young man fell out of a swing several years ago, striking on the right temporo-frontal region. His head was bruised considerably. Several years after this patient noticed a protuberance over the ridge of the right orbit. At the external canthal end of the upper lid a fluctuating mas was protruding. This was a sac which was taken to be a dermoid cyst, as he had several dermoids removed before in other parts of the body. Under local anesthesia he made an incision, got down to the cyst and found it was adherent to the periosteum. He cut into the cyst, began to curette, went as far as he could, but as some of the material he extracted had the appearance of brain tissue, he discontinued. He took a specimen of the tissue to the laboratory and it was pronounced suspicious of brain substance. He thought the patient might develop meningitis, but did not. The wound kept on discharging, but there was nothing found except unorganized tissue and some saprophytic bacteria. Subsequently, under general anesthesia, he made an incision from the orbital ridge upward and backward and found the frontal bone very thin; upon breaking through, a mass was discovered which resembled an onion in that it was made up in layers. This mass rested on the upper orbital contents and extended almost to the lesser wing of the sphenoid; the petrous portion of the temporal bone was exposed. The frontal lobe was compressed upwards. The mass was pear-shaped. There was an edematous right and left disc with a right prophthalmos, but no diplopia. Vision was 20/30 in left eye, and 20/30 in the right. As the wound kept on discharging he injected Beck's paste and subsequently had to go after the paste with a second operation, as it caused much swelling and edema. He curetted again and obtained nothing of the mass. Patient now has a small sinus tract running toward the median line, and if one uses a large sized probe, he can produce hemorrhage, owing to the granulation tissue present. The patient never had any diplopia. The dura was exposed. The roof of the orbit was gone and this space had no connection with the frontal sinus, because at the first operation he exposed the frontal sinus, and found no connection whatsoever (several X-ray plates were shown). At the same time, he curetted and removed as much of the ethmoidal and sphenoidal processes as possible with a clean sweep and drained through the nose.

He did not know the nature of the tissue removed, though it was submitted to many pathologists. If any member could suggest a method of treatment for this sinus without opening it up again or could suggest the nature of this mass, he would be greatly obliged.

CHOKED DISC: DECOMPRESSION OPERATION WITH TAPPING OF THE VENTRICLE.

Dr. Suker showed a little girl who first came under his observation a little over a year ago. Her vision at that time was 20/30 with a low degree of hypermetropia, not more than 1 D. She complained of persistent headache, with vacillating diplopia due to paresis of right external rectus which would come on for a day or two and then disappear. Knowing from the history that her vision was 20/20 minus in O. D. and 20/30 in O. S. two years ago (Dr. Barr) after examining her carefully he found she had a bilateral choked disc of about 3 m. m. swelling. He had her under observation for about three months before it was decided to operate as the vision began to decrease and the disc became more choked. Both neurological and gynecological examinations were negative. With the progression of the choked disc she had a decrease of vision in each eye, so that an operation became necessary. In conjunction with Dr. Kanavel, a decompression was performed on the right temporal area. As soon as the trocar entered the ventricle, clear spinal fluid escaped. Subsequent to the operation, patient had a complete hemiplegia of the spastic type which lasted for some time and then disappeared. The headache disappeared as soon as the patient came out from the anesthetic. Vision had improved somewhat. The field of vision was characteristic (exhibited fields). One set was taken a year ago and the other set was taken on the 13th of March of this year—a red and form field in the right eye, and a green and form field in the left. The X-ray plates showed a characteristic condition. As a result of decompression the patient had a cerebral hernia which is very soft and seems to fluctuate. As the brain tissue was so close to the skin Dr. Kanavel did not dare to tap or explore, particularly as the patient feels so well. One X-ray plate showed enlargement of the sella turcica. Patient was now free from pain; she had no headache, and it did not hurt her to move around or press upon the hernia. The only symptom she complained of was incessant headache and occasional paresis of the right external rectus, and on account of the involvement of the right external rectus, it was decided to make a decompression on the right side and tap the ventricles. Within three days the bilateral choked disc of about 5 m. m. completely disappeared. There is now a secondary atrophy, which is stationary.

Dr. Emory Hill asked whether the girl had polyuria, to which Dr. Suker replied no.

Dr. H. B. Young, Burlington, Iowa, stated that several years ago he exhibited a girl with the same general characteristics as those noted in the case presented by Dr. Suker, and a report of the autopsy he gave a little over a year ago. There was internal hydrocephalus, with so much pressure on the

internal table of the skull that the grooves for the different convolutions were 20 per cent. deeper than normal of the average skull. She recovered under tuberculin injections, remained well for four years, and developed so rapidly that she weighed 150 pounds when she was only fifteen years of age. She died suddenly at six o'clock one morning. The autopsy disclosed what he had just mentioned.

PAUL GUILFORD, Secretary.

FULTON COUNTY.

The sixty-eighth meeting of the Fulton County Medical Society was called to order at 2:30 p. m., in the auditorium of the Y. M. C. A. Building in Canton, by President Beatty. Minutes of the May meeting were read and approved.

Dr. Stoops presented Delegates' report of the state meeting which was accepted.

Necrologist Dr. Stoops reported the death of Dr. E. S. Parker, of Vermont.

On motion of Cluts and Ray the report was adopted and the president appointed Stoops, Cluts and Simmons to draft resolutions of respect. The secretary was instructed to incorporate a copy of the resolution in the minutes of this society and mail a copy to Dr. Parker's relatives.

The executive committee reported on the College of American Surgeons.

On motion of Dr. Cluts the report was accepted.

Dr. Oren moved that it is the sense of this society that the formation of the College of Surgeons under its present plans is un-American and should not be countenanced by the rank and file of physicians and surgeons.

After considerable discussion Dr. Oren withdrew his motion and the question was left with the executive committee.

Dr. Gillispie of Peoria presented his paper on "Chronic Urethral Infection and Complications."

After discussion the society gave a unanimous vote of thanks to Dr. Gillispie for his splendid paper.

Dr. Cluts presented a paper on "Catarrhal Enteritis."

On account of the lateness of the hour the balance of the program was held over to the next meeting.

Drs. Stoops, Cluts and Simmons presented the following resolution which was adopted:

It is with profound regret that we, the members of the Fulton County Medical Society, are called upon to note the death of our friend and co-worker, Dr. Edwin S. Parker of Vermont; therefore be it

Resolved, That we hereby publicly express our esteem of this excellent man and physician. We recognize that Dr. Parker was a physician of more than ordinary ability, that he was a faithful friend; a generous and upright man; an excellent citizen; a Christian gentleman, a devoted son to a most estimable mother, and the exponent of the highest in professional ethics; Be it further

Resolved, That we hereby convey to the relatives of Dr. Parker our deepest sorrow and sympathy in this their great affliction and that a copy of these resolutions be sent to said relatives, published in the ILLINOIS MEDICAL JOURNAL and recorded in the minutes of this society.

P. H. Stoops,
A. C. Cluts,
J. C. Simmons.

Adjourned.

D. S. RAY, Secretary.

MACOUPIN COUNTY.

The Macoupin County Medical Society met in quarterly session at Carlinville and was called to order by Dr. J. S. Collins, of Carlinville. After reading and disposing of the minutes the new officers were formally installed: President, Dr. E. R. Motley, of Virden; vice-president, Dr. C. D. King, of Gillespie; secretary-treasurer, Dr. T. D. Doan, of Scottville.

At this meeting it was unanimously decided to publish a County Journal by the society. It was also decided to revise the constitution which has been in force for a long time. A splendid dinner was enjoyed at Hotel Baird. After dinner the report of our delegate, Dr. T. D. Doan, from the annual meeting of the State Medical Society was given.

Dr. F. S. O'Hara, of Springfield, was then introduced and gave a very interesting talk on "X-Ray Work." He took up the history of the mistakes and failures of past work in this line and explained some of the causes of the failures; one of the most common causes being inferior machines and lack of careful study by the operator. He exhibited some plates which were interesting and were in accordance with the statements made by the doctor. He does not think that radium has accomplished anything that the x-ray cannot do. He considers that the work can be better done by the x-ray because of the ease with which these machines may be obtained.

At the close of his talk he invited all present to come to visit his large x-ray laboratory in Springfield to which he has added some of the latest machines. His talk and exhibits were very interesting and instructive and were greatly appreciated by all of the doctors present.

Dr. G. E. Stericker, of Springfield, followed with a talk on "Differential Diagnosis of Gastric Disorders" which was of considerable interest to the members present.

Dr. Don. W. Deal, of Springfield, then gave a talk on "Peritonitis."

All those present took a decided interest in discussing the papers and decided that this was one of the most interesting meetings for a long time. A vote of thanks was extended to the three doctors for their able papers and talks.

The next meeting place to be Palmyra.

DR. T. D. DOAN, Secretary.

OGLE COUNTY.

The Ogle County Medical Society held its August meeting in the lecture room of the Polo Public Library. The meeting was called to order by the president, Dr. Stevens of Rochelle, and owing to the absence of the secretary, President Stevens appointed Dr. L. A. Beard of Polo as secretary pro tem.

Dr. C. A. E. LeSage, Dixon, read a very practical and interesting paper on "Recent Development in Tonsillar Work."

The frequency of many of the infectious diseases arising from disease in the tonsils and the necessity for the total extirpation of the glands was discussed by Drs. Clark and Karcher of Freeport, Murphy of Dixon and Beard of Polo.

Dr. H. M. Stowe of Chicago then talked on the general topic of "Obstetrics."

He stated that the attending obstetrician should consider four points in his work, the life of the mother, the future health of the mother, the life of the child, and the future health of the child. He argued against trying to hasten labor and counselled allowing nature to take its course and the use of forceps only as a last resort. He discountenanced the use of chloroform, nitrous oxide and scopolamin, "a drug used by Dr. Freiburg and also recently by McClure's Magazine" as being dangerous to both mother and child, but especially to the child. Where an anesthetic is necessary, he advocated ether. He also recommended active work on the part of the mother in preparation for labor, saying it is the lazy and idle woman that suffers most and presents the most difficult problems for the attending obstetrician.

The paper was discussed at length by Drs. Murphy, Dixon, Karcher; Freeport; Allaben, Rockford, and Sheets, Oregon. Dr. Sheets reported a case in his practice in which a woman gave birth to a monstrosity on July 10 and in which he was assisted by Drs. Beveridge of Oregon and Murphy of Dixon. A complete description of the case, size of the monster, which weighed 13 pounds, and the difficulties of extraction were thoroughly explained by the attending obstetricians. The subject of monsters was then more fully discussed by Professor Stowe.

On motion the old officers were declared re-elected. A unanimous vote of thanks was tendered Drs. Stowe and LeSage for their interesting and helpful papers.

After a motion to hold the next meeting in Forreston the society adjourned.

SHELBY COUNTY.

The Shelby County Medical Society met July 23rd in session extraordinary at Lithia Springs Chautauqua, where "Physicians' and Public Health Day" was fittingly observed.

We were especially honored by the presence of the president of the Illinois State Medical Society, Dr. A. L. Brittin of Athens, Ill., Dr. F. J. Eberspacher of Pana, Ill., Dr. and Mrs. Albert T. Summers of Mattoon, Ill., and Dr. Frank T. Lutz of St. Louis, Mo., all of whom with members of our county society helped to make this meeting a grand success.

Owing to a "blow out" en route, Dr. Summers was unable to open the program at eleven A. M. as planned, so the secretary kindly consented to "sub" with a few remarks from a lecture on "Camp Sanitation" recently given at the Chautauqua. He spoke of prophylaxis as the watchman of camp life and told the audience to prevent the fly and mosquito rather than allow them to exist. Sanitary triumphs of Panama were reviewed and a few special "brass tacks" given to Osteopaths and Christian Scientists relative to Panama sanitation.

This was followed by remarks on "Prevention of Disease" by Dr. Eddy of Shelbyville and Dr. Hoffman of Effingham, who held to the theme until the dinner bell changed the program. In the afternoon the following program was given:

"Sanitary and Moral Prophylaxis," Dr. Albert T. Summers, Mattoon.

"Tuberculosis of Childhood," Dr. F. J. Eberspacher, Pana.

Monologue, "A Neighborly Visit," Mrs. Albert Summers, Pana.

"The Cancer Problem," Dr. F. J. Lutz, St. Louis, Mo.

President Brittin's remarks on organization were well received. In his speech to the laity, quacks and quackery were ably exposed and the true ethical physician exalted.

Dr. Summers' paper was full of interest to all. He showed the needless sacrifice of human life daily from preventable diseases and made a plea for more efficient sanitation.

Dr. Eberspacher presented his paper very ably, giving his personal observations of all phases of tuberculosis in the clinic at Vienna, Austria, last year.

"The Cancer Problem," by Dr. F. J. Lutz of St. Louis deserves special mention, as he exploded "Dr. Cancer Quack" with his sure cures, etc., and warned the laity about its choice of a physician, as Dr. Brittin had also done. Both stated in substance that affability and a loquacious brand of pseudo scientific "gab" on the part of the physician was not the criterion by which the true learned physician should be known. He is known by his professional relations within his own locality, his attendance at medical societies and in general his activities and associations with true ethical physicians at home.

The monologue by Mrs. Summers was greatly enjoyed by everyone present.

About five P. M. all adjourned to "Quercus Alba," the summer residence of the secretary, where a reception was tendered the visitors and their ladies by Dr. and Mrs. Auld. About fifty physicians were present and, as one physician put it, "the very air was medicinal."

Dr. Henry C. Heuck of Sigel was elected to membership at a business session held afterwards. There

being no further business all adjourned, declaring they would be delighted to come to Lithia again and observe "Physicians' and Public Health Day."

F. P. AULD, Secretary, Shelbyville.

Personals

Dr. A. C. Ragsdale has removed from Creal Springs to Carbondale and will limit his practice to diseases of the eye, ear, nose and throat.

Dr. Otto L. Schmidt has been elected commodore of the Northwestern Yachting Association and of the Inland Lakes Yachting Association.

Dr. John P. Sprague has been appointed professor of physical education and hygiene at Grinnell College, Grinnell, Iowa.

Dr. James W. Jobling, formerly pathologist of the Michael Reese Hospital, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.

Dr. James W. Gillespie, for fourteen years coroner of Hamilton county, has resigned and Dr. John J. Gee has been elected his successor.

News Notes

—The *Madison County Doctor* for July and August proves that a medical society can hold successful meetings even in hot weather when so many others have too little "pep" to undertake a meeting.

—After twelve hours deliberation, a jury at Duquoin, August 1, found Jesse Joplin guilty of the murder of Dr. D. Winton Dunn, former mayor of Duquoin, and fixed his penalty at life imprisonment.

—Sixty cottages will be under roof before winter at the new State Epileptic Colony at Dixon. Twenty will be erected to the south, twenty to the north, ten to the east and ten to the west of the administration building.

—The *News-Letter* of Englewood Branch for August contains a review of the Branch's very successful year and an appeal for volunteers for the coming season's programs. An excellent feature of the latter is the "reply blank" to be filled out by the members who offer to prepare papers at the date of their choice.

—The Illinois Board of Administration has decided to open a farm cottage annex to the Kankakee State Hospital on the site of the new Alton State Hospital. Three farm houses on this property are available, which will accommodate about one hundred patients who have almost recovered their mental poise.

—Dr. W. O. Nance, who recently returned from a European trip, was appointed chairman of a Chicago Council committee to locate Chicagoans detained in Europe but found the expense of sending cablegrams was so great that the funds available were soon exhausted. Mayor Harrison thereupon undertook to forward inquiries through the department of state.

—The State Board of Health field inspectors are to begin a tour of inspection of railroad depots. They will consider especially sanitation of toilet-rooms, water supply, cleanliness of waiting-rooms, cuspidors, sanitary conditions of restaurant kitchens and eating-places, ventilation and disposal of waste, and conditions of the stock-loading pens in the vicinity.

—The new building of the dispensary of the Evanston Tuberculosis Institute at the corner of University place and Maple avenue has been completed and the institution is in active operation. The hours for receiving patients are from 2 to 3 p. m., Mondays and Thursdays. The dispensary is under the medical supervision of Drs. William A. Phillips and William G. Alexander. It is expected that the general dispensary of the building will soon be ready to receive patients.

—The *Bulletins* of the Montgomery County Medical Society for July and August are at hand and present their usual attractive appearance. The article on Principles of Medical Ethics is concluded in the last number. The July 21 meeting of the society was held on a beautiful lawn in Harvel, where Dr. W. H. Mercer gave an address on his European experiences. The announcement of a fried chicken dinner and picnic for the August meeting doubtless drew a record attendance.

—At a "Chicken Fry" given by its president, Dr. W. S. Jones of Redmon, the Edgar County Medical Society planned a big day for some time in October. Several eminent speakers from a distance will be selected to aid in the afternoon program. At night will occur a special musical

program and banquet for members and families. The president appointed a special executive and program committee, consisting of Dr. E. O. Laughlin, Dr. Z. T. Baum and Dr. B. G. R. Williams, chairman.

—The first building of the new Cook County hospital was opened August 15 without ceremony. The building at present in use is the administration hall, which will accommodate 656 patients. The entire eighth floor of the building is arranged for surgical work. There are nine operation rooms, including two amphitheaters. The silent-call signal system has been installed throughout the institution. The old hospital buildings are now to be wrecked to make room for the new structures which will cost, when completed, $16,000,000.

—Many physicians from Chicago and other cities of this state were interned in Europe during the mobilization of troops, but the different governments seem disposed to facilitate their home coming. Nearly every steamer brings its quota of hard-luck stories. Dr. H. H. Schumann, a Chicago dentist, is said to have been arrested as a spy in France on account of a scientific manuscript he carried. One can readily imagine that a picture of streptococci might be taken for a war map by a suspicious officer. A French physician recognized the terms in the paper and caused his release.

—Several physicians in southern Illinois and Indiana are launching a new medical journal, *The Wabash Valley Practitioner*. The vicinity is rich and covered by strong medical organizations. The sheet will be strictly independent, though it has the endorsement of the best men in that region. The executive staff will consist of an editor, Dr. E. G. C. Williams, the secretary of the Vermilion County Medical Society and editor of its bulletin, and a publisher, Dr. B. G. R. Williams, who is ex-president and present chairman of the executive committee of the Edgar County Medical Society. Original papers, news and other matter of local interest will be included.

Marriages

Paul Henry Anthony, M. D., Morris, Ill., to Miss Mary Wendolyn Fitzgerald of Chicago, at Chicago, June 30.

Edward Kent Armstrong, M. D., Chicago, to Miss Caroline Holmes Focer of Cape May, N. J., August 10.

Thomas Irving Stines, M. D., to Miss Laura Lee, both of East St. Louis, Ill., July 28.

Deaths

Webster M. Dyas, M. D. Rush Medical College, 1896; died at his home in Arlington Heights, Ill., July 2, aged 52.

Alfred Royce Brundage, M. D. Albany (N. Y.) Medical College, 1890; died at his home in Chicago, July 20, aged 54.

Gillum Taylor Ragan, M. D. University of Georgetown, Washington, D. C., 1866; died at his home in Neoga, Ill., July 9.

William Wilford McMurdo, M. D. Washington University, St. Louis, 1905; died at his home in Marissa, Ill., August 6, aged 35.

Solomon L. Reefy, M. D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Edinburg, Ill., August 2, from paralysis, aged 75.

Carl G. Lindeblad, M. D. Rush Medical College, 1908; formerly of La Grange, Ill.; died in his apartments in Albuquerque, N. Mex., July 30, aged 33.

Lee Osborne Scott, M. D. Rush Medical College, 1905; a member of the Illinois State Medical Society; died at his home in Rockford, Ill., June 26, aged 36.

William Henry Eldred, M. D. Rush Medical College, Chicago, 1882; Hahnemann Medical College, Chicago, 1883; died at his home in Chicago, August 12, aged 56.

Albert Roderick Warren, M. D. Eclectic Medical Institute, Cincinnati, 1882; mayor of Pekin, Ill., in 1887; a veteran of the Civil War; died at his home in Pekin, August 5, aged 74.

Milan Theron Ward, M. D. Albany, N. Y., Medical College, 1894; a Fellow of the American Medical Association; died at his home in Toulon, Ill., after practicing medicine there about 20 years, July 7,, aged 55.

Hagop H. Thoumaian, M. D. Northwestern University Medical School, Chicago, 1896; of St. Anne, Ill.; a Fellow of the American Medical Association; died in the Presbyterian Hospital, Chicago, July 18, aged 47.

EDWIN S. PARKER, M. D. Northwestern University Medical School, 1885; a Fellow of the American Medical Association; died at his home in Vermont, Ill., recently, from cerebral hemorrhage, aged 55.

HENRY T. MCKEE, M. D. Missouri Medical College, St. Louis, 1884; of Sparta, Ill.; aged 56; a Fellow of the American Medical Association; died in a hospital in St. Louis, June 3, after an operation for mastoid abscess.

HENRY PARKHURST GREELEY, M. D. Chicago College of Medicine and Surgery, 1913; of Lee, Ill.; was instantly killed in a collision between the automobile in which he was riding and a railroad train near Shabbona, Ill., July 5.

LEMUEL CONANT GROSVENOR, M. D. Homeopathic Hospital College, Cleveland, 1864; for thirty-seven years a practitioner of Chicago, and for seven years a resident of Taunton, Mass.; died at his home in the latter place, July 17, aged 82.

CHARLES SEGERLUND, M. D. Bennett Medical College, Chicago, 1897; a Fellow of the American Medical Association; secretary of the Caledonia (Ill.) Mutual Telephone Company; was instantly killed by a train near Caledonia, July 24, aged 47.

HENRY KNOX STRATFORD, M. D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; Bennett Medical College, Chicago, 1888; surgeon at Camp Douglas during the Civil War; died at the home of his daughter in Austin, Chicago, July 28, aged 92.

WILLIAM EDWARD HOWARD, M. D. St. Louis College of Physicians and Surgeons, 1890; Bellevue Hospital Medical College, 1898; of Ohio, Ill.; a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile, May 20, aged 49.

DAVID PHILIP MILLER, M. D. Keokuk, Iowa Medical College, 1895; of Chicago; a Fellow of the American Medical Association; formerly professor of physiology in Illinois Medical College; died in the Henrotin Hospital, Chicago, July 22, after a surgical operation, aged 41.

WILLIAM H. WILLIS, M. D. Missouri Medical College, St. Louis, 1881; a Fellow of the American Medical Association; a member of the staff of the Proctor Hospital, Peoria, Ill.; died suddenly at the base-ball park in that city, July 4, from angina pectoris, aged 54.

GEORGE HARVEY LEE, M. D. Bennett Medical College, Chicago, 1883; of Kankakee, Ill.; a member of the Illinois State Medical Society; president of the Kankakee County Medical Society; died in the Emergency Hospital in Kankakee, July 8, from septicemia, due to a splinter wound of the finger, aged 54.

NEW AND NONOFFICIAL REMEDIES.

Since publication of "New and Nonofficial Remedies, 1914," the following articles not previously described have been accepted for inclusion with "N. N. R.":

Antiseptic Supply Co.: Stypstick Applicators, alum 75 per cent.

Comar & Cie.: Electrargol for injection, 10 c. c. ampoules.

Hynson, Westcott & Co.: Urease-Dunning.

Electrargol.—Electrargol is a colloidal solution of silver, containing silver, equivalent to 0.25 per cent metallic silver. It is said to be useful in febrile diseases, even in those which are not of a septic character. It is also used externally in inflammatory conditions. For subcutaneous, intramuscular or intravenous injections electrargol is supplied as electrargol for injection in ampoules containing 5 c. c. For external use electrargol is supplied as electrargol for surgical use in bottles containing 50 c. c. (Jour. A. M. A., June 6, 1914, p. 1808.)

Culture of Bulgarian Bacillus, Mulford.—A pure culture in tubes of the *Bacillus bulgaricus*. It is designed for internal administration for the purpose of establishing lactic acid-producing bacilli in the intestines and for external use. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., June 13, 1914, p. 1890.)

Lactobacilline Tablets.—A pure culture of the *Bacillus bulgaricus*. These tablets give rise to the production of considerable quantities of lactic acid, which tends to restrain the growth of putrefactive organisms in the intestines. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1890.)

Lactobacilline Liquide, Culture A.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized sugar bouillon, each tube containing from 5 to 6 c. c. Its actions and uses are the same as those of Lactobacilline tablets. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Liquide, Culture D.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon. Its action and uses are the same as those of Lactobacilline tablets. Marketed as Lactobacilline Liquide, Culture D, small containing 5 c. c. and Lactobacilline Liquide, Culture D, large containing 16 c. c. in each tube. Franco-American Ferment

Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Liquide, Infant's Culture.—A pure culture in tubes of the *Bacillus bulgaricus* in a whey medium. It is employed in the treatment of diarrhea or dysentery in nursing infants or young children. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Glycogene Tablets.—Tablets containing pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. The *Glycobacter peptolyticus* transforms into sugar the amylaceous substances in the diet, thereby furnishing a pabulum for the *B. bulgaricus*, which, in turn, transforms the sugar into lactic acid. These tablets are designed for the prevention and treatment of intestinal diseases. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Glycogene Liquide.—A pure culture in tubes of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. Its action and uses are the same as those for Lactobacilline Glycogene tablets. Marketed as Lactobacilline Glycogene Liquide, small, containing 5 c. c. and Lactobacilline Glycogene Liquide, large, containing 16 c. c. in each tube. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Milk Tablets.—Tablets containing pure cultures of the *Bacillus bulgaricus* and *Bacillus paralacticus*. These tablets are used in the preparation of scientifically soured milk. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Suspension.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon medium. This culture tends to inhibit the growth of deodorant, putrefactive and pathogenic organisms and is used externally in various suppurative conditions. Marketed as Lactobacilline Suspension, containing 5 c. c. and Lactobacilline Suspension, surgical, containing 20 c. c. in each tube. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Milk Ferment.—A pure culture in tubes of the *Bacillus bulgaricus* and *Bacillus paralacticus*. Its actions and uses are the same as those of Lactobacilline milk tablets. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

OMITTED FROM N. R. R.

Wm. R. Hubbert.: Diphtheric Antitoxin, Hubbert.—Having been advised that Diphtheric Antitoxin, Hubbert, was no longer on the market, the council directed that it be omitted from future editions of new and non-official remedies.

CHANGE OF NAME.

Riedel & Co.: Hexalet.—At the request of the manufacturer the name Hexal in new and non-official remedies has been changed to hexalet.

Public Health

Inasmuch as it is compulsory that children between the ages of 6 and 14 years attend school, it devolves on a community through its constituted authorities, to see that its children are not forced into surroundings which endanger their well being—physically, mentally or morally.

Children are compelled to attend school during that period of life when peculiarly susceptible to certain contagious and infectious diseases. The average individual spends more days on the sick bed while of school age than at any other period of life, and by far the greater part of the illness of that age is of the preventable kind. The school child undoubtedly contracts many of its infections in the schoolroom.

It, therefore, is a matter of tremendous importance that safeguards—extraordinary safeguards—be thrown around the child while it is a compelled attendant at a community institution, such as a school.

In school hygiene there is nothing of more far-reaching importance than *proper* ventilation of the school building. Pure air will do more to eliminate the danger of infection in the schoolroom than any other one thing. It tends to keep up the pupil's physical tone, which means resistance to disease and, besides, it is one of Nature's most effective bactericides. An unventilated, overheated schoolroom is an incubator for disease germs and a destroyer of physical and mental efficiency.

Some of our schools have inefficient system of ventilation—but none are without the means of securing an adequate supply of pure air. When the ventilation system is inefficient, resort to the open window can be had.

The quality of a school's air rests, therefore, with the school principal, his staff of teachers and the caretakers.

A principal or teacher indifferent to air conditions in his school is indifferent to the health and well-being of his charges, a menace to child and community welfare. A consideration in measuring a principal's or a teacher's efficiency should be his or her attention to the question of school air.

The schoolroom should be the safest place a child may go. To make it so we must have:

1. Perfect ventilation.
2. Proper heating and humidifying of air when necessary.
3. Cleanliness of quarters and occupants.
4. Exclusion of infection bearers.

Most of our human worries are simply excess baggage that we do not need to take along and which to carry costs us in bodily wear and tear ten times its value. It is a good plan to travel light and take things as easy as possible. Not that we should shirk either our work or our responsibilities, but we need not carry excess baggage.

Spasmodic cleanliness is better than no cleanliness at all. But it is being clean all the time that makes most for health, happiness and freedom from disease.—*From Bulletin Chicago Department of Health.*

Book Notices

ANOCI-ASSOCIATION. By George W. Crile, M. D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $3.00 net.

This is one of the most interesting books we have read. A small part of the book has appeared previously in monographs by Dr. Crile.

The subjects treated are scientilc and comparatively new, yet are written up in a remarkably clear, readable style, and any physician seeing the work, will want to read it thoroughly. While it is scientific in the main, the book contains much that is of immense practical value in the everyday routine work. No physician who is doing any surgery, particularly emergency surgery, should fail to read this book.

A TREATISE ON CLINICAL MEDICINE. By William Hanna Thomson, M. D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $5.00. Half morocco, $6.50.

This book is rather out of the ordinary and, as its name implies, is a work on *clinical* medicine. Perhaps snce the days of the microscope we rely too much upon its use; at least, if a diagnosis may be made from purely clinical findings, the patient may be relieved just so much sooner, and that is always a prime object.

The book will be found useful for those practitioners who must do without the microscope in much of their work. It is especially serviceable in diagnosing conditions which the microscope fails to reveal. One of the principal features of the book is the attention it bestows on therapeutics. We recommend it especially to the general practitioner.

BLOOD PRESSURE: ITS CLINICAL APPLICATIONS. By George W. Norris, A. B., M. D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Octavo, 372 pages, with 98 engravings and 1 colored plate. Cloth, $3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new work on blood-pressure and its clinical applications well deserves careful study. It is one of the best works on the study of blood-pressure and its relations to health and disease. The chapters on blood-pressure in disease are especially good, likewise the chapters on the effect of drugs and glandular extracts. The work is well illustrated, and the illustrations aid greatly to a perfect understanding of this subject. This book is recommended for those who wish an excellent work on blood-pressure.

A TREATISE ON DISEASES OF THE NOSE, THROAT AND EAR. By William Lincoln Ballenger, M. D., Professor of Laryngology, Rhinology and Otology in the College of Physicians and Surgeons, Chicago. New (4th) edition, thoroughly revised. Octavo, 1080 pages, with 536 engravings, mostly original, and 33 plates. Cloth, $5.50 net. Lea & Febiger, Philadelphia and New York, 1914.

Those who have read any of the previous editions of Ballenger need no recommendation to this new fourth edition. A fourth edition coming within six years demonstrates how the profession receives this book.

It is primarily a text-book for the student, teaching Rhinology, Laryngology, and Otology as few men know how to teach it, and this is one of the reasons for the popularity of the work.

Dr. Ballenger has done an enormous amount of work on this text, and has revised all that is in it down to date, adding to the earlier editions all that is new and best on these subjects.

In this new edition the Labyrinth has claimed most attention, there being over one hundred pages added on this topic.

The illustrations alone from a large part of the book, and their value cannot be calculated. Several new operations are described and illustrated. No medical student can afford to be without this book, and every physician should possess a copy.

A MANUAL OF DISEASES OF THE NOSE AND THROAT. By Cornelius G. Coakley, M. D., Clinical Professor of Laryngology in the College of Physicians and Surgeons, Columbia University, New York. New (5th) edition, 12mo, 615 pages, with 139 engravings and 7 colored plates. Cloth, $2.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

A new edition of this well-known manual on Laryngology will be gladly received by those who have used it in the past. The work is one of the most practical manuals of which we know. It is brief, clear, and still covers the subject in a wonderfully practical manner. The illustrations are good.

One must remark on the attention given to medical treatment. The book is especially adapted to the use of the student who cannot give the time to a subject as is required by the more ponderous volumes. The general practitioner will find it quite useful in the everyday routine of general practice.

SEROLOGY OF NERVOUS AND MENTAL DISEASES. By D. M. Kaplan, M. D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City. Octavo of 346 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $3.50 net.

This is the first American book covering the subject of Serology in nervous and mental diseases.

Coming as it does at a time when so much thought and study are being given to that class of diseases, and at a time when so much research work is being done in Serology, makes us predict for it a wide sale.

The general practitioner will be interested in the book, and be surprised at the enormous amount of work already accomplished. The book will be of most value to the laboratory worker in his everyday routine work, and to the research worker in the many preplexing questions coming before him. We recommend it to the profession.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercury Hospital, Chicago. Volume III. Number III. Octavo of 215 pages, 54 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, $8.00. Cloth, $12.00.

The present volume of clinics keeps up well the pace set by previous volumes. Especially good are the chapters on surgical and general diagnosis, tenoplasty, neuroplasty, and arthoplasty. The presentation of the cases with diagnosis before operation, at operation, and final result is ideal. One cannot commend these clinics too highly.

DIETETICS: OR FOOD IN HEALTH AND DISEASE. By William Tibbles, LL.D., M. D., L. R. C. P., M. R. C. S., L. S. A. Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc Octavo, 627 pages. Cloth, $4.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The marked advance in the last few years in the study of dietetics has resulted in this new work on dietetics, or food in health and disease, by Dr. William Tibbles, of England. It is a fairly large work and covers the subject matter in two parts. The first part gives an exposition of food values, digestion, absorption, heat value, metabolism, etc.—the second part on the use of foods in the numerous diseases in which attention to food is important. The ground is well covered, and is one on which physicians in general are somewhat weak. The reading matter is exceedingly clear and easily grasped. It is a book that should be in every physician's library, and one that will be frequently referred to with profit to both physician and patient.

COLLECTED PAPERS FROM THE RESEARCH LABORATORY of Parke, Davis & Co., Detroit, Mich. Volume II, 1914.

This volume contains the collected papers of the research laboratory of Parke, Davis & Co., as they have appeared from time to time in the various scientific publications. For those interested in medical research work, this volume of papers should be extremely interesting and make profitable reading.

GUIDING PRINCIPLES IN SURGICAL PRACTICE. By Frederick-Emil Neef, B. S., M. L., M. D. Adjunct Prof of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo; 180 pages. Surgery Publishing Co., New York. Price, cloth, $1.50.

This work by Dr. Neef covers in a volume of 180 pages that portion of surgery which experienced surgeons do as a natural thing to obtain successful results. It is a work principally for the general practitioner and the beginner in surgery. The book covers the principal points in the preparation of the patient, the operating room, and the surgeon. The relationship between the anaesthetist, the assistant, and the family physician are not neglected. The mechanical features of the book are excellent. Marginal headlines in red ink facilitate ready reference.

DISEASES OF BONES AND JOINTS. By Leonard W. Ely, M. D., Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. Sextodecimo: 220 pages, 94 illustrations. Surgery Publishing Company, New York. Price, cloth, $2.00.

Professor Ely has written this book at a most opportune time, as an unusual interest has manifested itself at present by the profession in acute and chronic arthritis, and other types of bone and joint diseases. As with the volume of Dr. Neef, this one is intended primarily for the general practitioner, without going into a mass of details. It is concise, clear, lays down broad general principles, and shows how they may be applied. It is well illustrated, which aids greatly in presenting this subject. As a clear, concise, short and readable book it can be recommended.

A TEXT-BOOK OF MEDICAL DIAGNOSIS. By James M. Anders, M. D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia and L. Napoleon Boston, M. D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second edition thoroughly revised. Octavo of 1248 pages, 500 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $6.00 net; Half morocco, $7.50 net.

The second edition of this excellent book on medical diagnosis is before us for review. One can scarcely imagine the amount of new material added since the first edition.

The entire work has been almost completely rewritten and all practical advances in diagnosis given consideration. Important new matter added are movements of the two halves of the chest; electrocardiograms; extrasystole; auricular fibrillation; semi-irregularity; albuminous sputum; cobra-venom reaction in syphilis; tick of relapsing fever; Rumpell-Leed phenomena in scarlet fever; inclusion bodies of Döhle in scarlatina; sweating and its significance; trichinella spiralis in the blood; MacEwen's sign and Brudzenski's sign of epidemic meningitis; Prendergast's typhoid reaction; fatty emboli; and numerous others, in fact, enough new matter to make a distinct and separate volume. Its 1200 odd pages are well printed, readable and clear, the style is easy, and the numerous illustrations, mostly original, greatly facilitate easy grasping of the text. One can no more than emphasize the review on the first edition, that it is without doubt, one of the two or three leading works on medical diagnosis in the English language, and as such it is commended to student, general practitioner and specialist.